THE MEDICAL TOPOGRAPHY AND STATISTICS

OF

THE CEDED DISTRICTS

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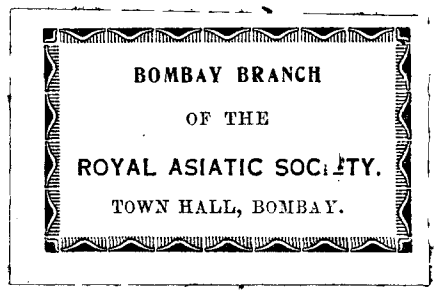

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MAP
of the
CEDED DISTRICTS.
Scale
Miles to an Inch
Population and Extent in Square Miles of the Collectorates of Bellary and Cuddapah according to the most recent investigations
Bellary
Cuddapah
Total
Madras Lith. Press
E.C. Regd.

REPORT

ON

THE MEDICAL TOPOGRAPHY AND STATISTICS

OF

THE CEDED DISTRICTS.

COMPILED FROM THE RECORDS

OF THE

98434

MEDICAL BOARD OFFICE.

PUBLISHED BY ORDER OF GOVERNMENT.

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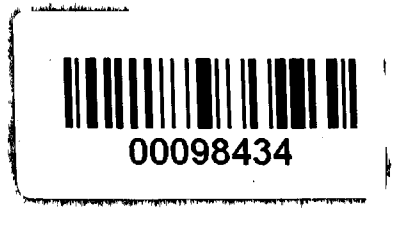

CEDED DISTRICTS.

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CEDED DISTRICTS.

The Ceded Districts, one of the Military divisions of the Madras presidency, came into the possession of the Honorable East India Company in the year 1800, by a treaty entered into with His Highness the Nizam, or Soobah of the Deccan, subsequent to the fall of Tippoo Sultan, and the partition of his territories.

The country which may be described as a table-land, lying between the eastern and western ghauts, at an average elevation of about 1600 feet above the level of the sea, is of a triangular shape, and extends between the 13th and 16th degrees of north latitude, and the 76th, and 79° 30″ of east longitude;—comprising an area of 25,950 square miles, with a population of 2,307,964 inhabitants. It is bounded on the north by the Nizam's dominions, from which it is separated by the rivers Toombuddra and Kistnah;—on the east by the districts of Nellore and Guntoor, the eastern ghauts forming the natural boundary on this side;—the southern and western aspects of the country being bounded by the province of Mysore, and a part of the Southern Mahratta division.

The general appearance of the country is irregularly mountainous, with several ranges of hills, of both granitic and secondary formation, and extensive plains of regur or cotton soil, lying between them.

The principal rivers are the Toombuddra, Kistnah and Pennar.

The Ceded Districts, properly so called, is divided into two collectorates, those of Bellary and Cuddapah, to which the principality of Kurnool has lately been annexed. The military stations are, Bellary the head quarters of the division, and also the residence of the Civil authorities of the collectorate;—Cuddapah and Kurnool, stations for single native corps; and the hill fort of Gooty, where a detachment

of a native corps is stationed, for the protection of certain State prisoners there confined.

Statistical tables for the collectorates of Bellary and Cuddapah, will be found in the appendix, showing the extent of land under cultivation in the different talooks, and the amount of population; with other interesting particulars.

BELLARY.

General description.

The Bellary collectorate, or western division of the Ceded Districts, comprises the northern part of the elevated table-land, lying between the ranges of the eastern and western ghauts, which extends from the 11th to the 16th degrees of north latitude. The highest parts of the table-land are near Bangalore and Nundydroog, where the altitude above the sea is 3000 feet, from whence there is a fall in every direction. Towards the north, the declination continues for 250 miles, chiefly through the Bellary district, along the valleys through which the large rivers Toombuddra and Kistnah flow; and although the descent is so gradual, as to be imperceptible to the traveller, the fall from Bangalore to Bellary amounts in a distance of 188 miles, nearly due north, to 1818 feet, the latter place being found to be only 1182 feet above the sea.

All the rivers which have their origin in this district, or in the adjoining part of Mysore, follow a northerly course, the Hoogeree rises near to Serah in Mysore, which is 2,223 feet above the sea, and runs due north in nearly a straight line, until it empties itself into the Toombuddra. In its way it passes near to Bellary, which being 109 miles north of Serah, gives a fall in that distance, of 1041 feet. The collectorate comprises an area of 12,980 square miles. Mysore lies to the south and west, Cuddapah and Kurnool to the east, and to the north, the rivers Toombuddra and Kistnah form its boundary, separating it from the Dooab and the Deccan.

The district generally is very flat and open, but there are many hills of granite scattered over its surface, and it is inter-

sected by numerous lower ranges. In the hot season the country has a sterile appearance, from the absence of trees, and all vegetation, but shortly after the rains fall in June, the plains become converted into vast fields of luxuriant grain. The open country is a rich black cotton ground, and near to the hills it is of a deep red, and is generally thickly covered with stones, of the same geological characters as the rocks composing them. Granite is chiefly met with about Bellary, Bejanuggur, Adoni and Paulsamoodrum. The principal ranges of hills are the Nullamulla, on the north eastern frontier, and the Kumply and Sundoor, on the western side. The former is composed of sand-stone and clay-slate, the two latter of a chloritic slate; in many of the hills, long dark coloured trap-dykes, shoot out prominently like walls, above the surface. A spur from the Sundoor range runs along the south side of the cantonment of Bellary, and extends in an easterly direction, to Boodiaul eight miles distant, where it abruptly terminates. A high point in this range is opposite to, and within four miles of the fort of Bellary, and is called the copper mountain, the height of which is 1600 feet above the plain, or 2800 above the sea. There is a small space of table-land on the top, which might be made available for a *sanatarium*, at a moderate expense. The chief objections to it are the steepness of the ascent, and the necessity of supplies of all kinds, and even water, having to be carried up from the plains. On one occasion also, some years ago, when a party of officers were preparing to ascend these hills, a baggage tent pitched on the summit, was struck by lightning, and two or three men killed.

The copper ore which is here found, is the green carbonate, in the state of clay, lying below the crest of the southern epaulment of the hill. Excavations are still to be seen, said to be the remains of mines worked by order of Hyder Ali; but which were abandoned in consequence of the expense exceeding the profit. Besides copper, hæmatitic iron ore in large quantities, is found, some of which possesses magnetic properties.

Rivers. The principal rivers are the Toombuddra, and Kistnah; the former rises in the western part of Mysore, and runs in a north easterly direction, until it joins the Kistnah a few miles below Kurnool; the latter rises near to Satarrha, and has a south easterly course towards Kurnool, where it again turns to the northward, and falls into the sea about 30 miles south of Masulipatam. In addition to these, the Pennar river rises at Nundydroog, and runs in a northerly direction for 130 miles, then turns to the eastward, passing by Cuddapah, and falls into the sea near Nellore. There are numerous other small rivers and nullahs, which empty themselves into the Toombuddra, and only contain running water during the rains.

The wood required for the use of the station of Bellary, is floated down the Toombuddra, but none of the rivers are navigable for any distance.

Several annicuts or dykes, are built across the head of the Toombuddra, to raise the height of the stream, from which water courses are opened, for the irrigation of extensive tracts of country along its banks, particularly at Humpy or Bejanuggur, Seeragoopah, and Rampoor. These dykes were constructed by the Hindoo sovereigns of Bejanuggur, in former days.

Tanks and wells. Tanks for the purposes of irrigation are numerous; one of the largest is the Duroogee tank, about 18 miles west of Bellary, which is chiefly fed by a small river running through the Sundoor valley, and an extensive sheet of wet cultivation, lies below its banks. The other large tanks, wells or bowries, are very deep, and require great labour in sinking them, having in general to be cut through solid rock. In the low grounds near the banks of rivers, water is usually found about 12 feet from the surface, but in other situations, it is not met with nearer than from 20 to 30 feet. The water of wells sunk in cotton ground, is always of that description called hard, and is very frequently brackish, and unfit either for drinking, or culinary purposes,

from containing a large quantity of common salt, and of carbonate of lime; the former is likewise found on the surface, and the latter in the white calcareous earth, the invariable subsoil of the cotton lands, and it also fills up the interstices between the blocks of granite, which lie below the surface.

Vegetable productions and plants.

The most common indigenous trees are the *babool*, the *ber* and the *wild-date*. The babool or gum-arabic tree, is chiefly met with along the banks of nullahs, but is also found on the plains; the wood is very hard, and valuable for making ploughs and other agricultural implements. Gum is likewise collected from it, and the bark is used in tanning, and also in the distillation of arrack. The ber tree or zizyphus jujuba, has some resemblance to the birch, in the upper surface of the leaves being of a deep green, and the lower of a whitish colour. The wood is used in building, and the fruit is eaten by the natives. The leaves ground up with tyre are given in bowel complaints, and in difficult parturition. The leaves of the wild-date, elate sylvestris, are made into mats, and the stalks into baskets and tatties, and the fruit is much prized by the natives; the two last named trees grow in low sandy situations near nullahs. In the Nullamulla range and in the north-eastern part of the district, *teak*, *black palmyra*, and other valuable trees are found, and likewise the bamboo. Much useful wood is brought from Sundoor and the adjacent hills, from whence also Bellary is supplied with firewood.

The trees most commonly met with in gardens, are the same as those in other parts of India, such as the mango, tamarind, banians, margosa and cocoanut, topes of the two former being planted in red soil.

The only shrubs seen, and which over-run the uncultivated black soil, are the cassia auriculata, and the glacous leaved physic nut, iatropha glauca, or as it has been called croton lobatum. The former resembles the broom in appearance, having a bright yellow flower; its seeds are considered refri-

gerant; and the latter has a very unsightly appearance, and from its seed an oil is extracted, which is used in chronic rheumatism and paralytic affections. These with a few acacias, are the only plants to be seen on the vast plains of cotton ground.

The tortilis euphorbia is commonly found amongst rocks, and in red soil, with many other shrubs, such as the milk hedge, prickly pear, aloes, asclepias gigantea and datura fastuosa.

Mineral products. Among the mineral products of the Ceded districts, are iron of excellent quality, copper, lead, antimony manganese, culinary salt, natron or native soda, salt-petre, and a small quantity of alum.

It is probable that coal may exist in the lime and sand stone formation, about Cuddapah and in the bed of the Pennar, and it would be worth while in these situations, which abound with the finest natural springs, to ascertain by boring if this mineral exists.

Insects. Insects are not particularly numerous, but scorpions are very abundant, the cobra-de-capelle is met with, though very few snakes of any other description.

Birds. Birds are in great variety, as the hooppo, jay, dove, woodpecker, cuckoo, tailor, and mango birds; the quail, partridge, rock pigeon, pea fowl, florikin, bustard, snipe, teal, wild duck, flamingo, owl, and hawks of several kinds.

Wild animals. Wild animals are also numerous, as hares, antelopes, spotted deer, foxes, jackalls, hyenas; those confined to particular localities, are monkeys, wild hog, elk, bears, cheetahs and royal tigers.

Fish Fish is procured in but limited quantities.

Population. The population amounts to 1,226,703, and is composed of a great variety of castes. People of two different

tongues meet as it were in the centre of the district, viz, the *teloogoos* and *canarese*. The teloogoo language is spoken in the eastern part of the district, and the canarese in the western; the line of separation lying half way between Bellary and Ghooty, but the teloogoo and canarese villages are very much intermixed, for some distance.

The teloogoo people are followers of Vishno, and burn their dead. The canarese worship Siva, and are chiefly of the Jungum caste, or those who wear the *lingum* or *phallus*, which is carried in a silver box on the breast, or tied round the arm; they bury their dead. There are also considerable numbers of Mahrattas and Mussulmans.

The principal objects of worship are Siva, in the form of a bull, and of the lingum; Hunnooman, in that of a monkey; and the cobra-de-capelle; offerings to the latter, are confined to the time of marriages. At Bejanuggur there is a celebrated lingum pagoda, to which natives from all parts of the country flock at the time of the annual festival. There is likewise another pagoda in Sundoor, erected to Cartika the hindoo Mars, which is also a place of pilgrimage. The people of both castes join in each others festivals. The guardian deity of villages is Mareeummah, and in time of sickness vows are made to her, and offerings of fowls, sheep, or buffaloes, to remove the evil. At Bellary, numerous sheep are sacrificed to this goddess, every tuesday and friday; in making the offering one person holds the head, and another the body of the animal, keeping it standing, whilst the poojaree or officiating priest, with a single stroke of the sacrificial axe, severs the head from the body. The head and right fore leg are the perquisite of the poojaree, and the persons who make the offering carry home the body of the animal to feast upon.

The inhabitants generally, are tall, stout and well formed, and are comfortably clad; their food chiefly consists of dry grain, particularly cholum, which is ground into flour, and eaten in the form of cakes, rice being but little used; and the description preferred is partially boiled grain, which has

been dried in the sun; but which cannot be preserved beyond a few days.

Prevailing diseases. Fevers are common in the cold weather and during the rains, but are generally mild, leaving no ill effects, such as enlarged spleens, or dropsy. When the disease is severe or fatal, the danger is generally owing to the supervention of affections of the head or chest.

Bowel complaints appear during the rains, and often prove fatal to old or sickly persons. Ophthalmia, or the country sore eye, is prevalent during the hot season, as also guinea worm; and scrofula is not an unfrequent disease; tubercular phthisis has not been seen, but severe and fatal cases of pneumonia, as a sequence of fever, are occasionally met with. Small pox is seldom heard of, and there can be no doubt that the infrequency of this dangerous disease, is to be ascribed to the general diffusion of vaccination throughout the country. Cholera unfortunately often makes its appearance both as an endemic, and also in an epidemic form, carrying off numbers of people. Diseases of the skin are not very prevalent.

Paupers do not appear to be numerous, they usually go from house to house in the evening, at the time the people make their principal meal, and beg a portion of food; but the inhabitants, both hindoos and mahomedans, are severely taxed by numerous able bodied religious mendicants, who go from door to door every morning, singing or playing on musical instruments, and boldly demanding charity; these sturdy vagrants will only accept money, or uncooked grain.

Villages and houses. All the villages are surrounded by walls, and the houses are constructed of stone and mud, the roofs being flat and covered with earth. The doors are made of planks of wood, or of branches of trees strongly wattled together, and plastered over with clay, and cowdung; the floors being smoothed over about once a week with a similar mixture, which destroys vermin, and which when dry, has a very cleanly appearance.

Agriculture. The chief products of the cotton grounds are cholum, cumboo, millet and cotton; these likewise grow in light red soil, but the castor oil plant with various kinds of pulses,are chiefly cultivated in the latter, and are all sown at the same time. The state of agriculture in this country is very defective, especially in the manner of ploughing and manuring, but the after process of clearing the fields of weeds, and loosening the earth about the roots of the plants, appears to be well managed, by means of small hoes drawn by bullocks, an operation easily effected, from grain of every description being sown in drills.

On first breaking up cotton ground, and once in about every 10 or 12 years, the soil is turned up with a large plough drawn by 12 bullocks, and traversed several times in different directions, until weeds and jungle plants are entirely extirpated; a large tree is then drawn over it to break the clods of earth, thrown up by the plough; and an iron instrument called chinna coondooka, or the native harrow, three feet square, is afterwards passed over it, still further to level and smooth the surface. The grain is sown in three rows at once by the drill machine, worked by two bullocks, but large seeds as the cotton, and castor oil, are sown in single rows, by a drill box held in the hand. The harrow is again drawn over the surface, to cover in the seed. In succeeding years the small plough worked by two bullocks, and the harrow only are used.

Cotton is grown in drills along with cholum, or millet; with the former the drills are about six feet apart, and have from four to six rows of cholum, between each one of cotton; with the latter, the drills of cotton are only three feet apart, and have two rows of millet between them. When the crop of millet is cut down, a very singular and sudden change occurs, one day nothing being seen but yellow grain, which on the next disappears, and a thick crop of green cotton, about half a yard high remains. None of the fields are enclosed, but they are generally separated from each

other, and protected at the sides of the road by rows of the prickly jamaica yellow thistle, argemone mexicana.

Bullocks travelling along the roads, when the grain is on the ground, are muzzled to prevent their committing depredations. In the irrigated ground, sugar cane and rice are cultivated, the latter without being transplanted. When the grain is cut, it is carried to the threshing floor, and trodden out by bullocks. The granaries in which it is stored are large holes dug in the ground, having only a narrow opening sufficient to enable a man to descend into them, but excavated to the size of six or more feet in diameter, and about the same in depth; when filled with grain the opening is closed with a stone, covered over with earth. Grain in time of war, used to be thus concealed from the enemy.

A preference is given to red soil for garden ground, in which carrots and onions of a very superior kind are produced as also chillies, tobacco, and flowering plants, for making the wreaths presented to idols. Gardens are watered from wells, the water being raised by bullocks; melons are extensively cultivated in the dry beds of rivers, the sand being excavated to the depth of two or three feet, in the form of pits or trenches, into which two or three baskets of earth and manure are thrown, previous to the seed being put in.

Horned cattle. The horned cattle of the district are of a very good description, draught bullocks sell at from 15 to 30 Rupees each, and cows with young calves,bring from 10 to 20 Rupees.

Diseases of cattle. Pedda rogum, the disease so called is a purging of slime and blood, during which the animal neither eats nor drinks. It occurs when heavy dews prevail. The treatment consists in giving equal parts of the bark of the mango and fig trees, with the astringent bark of the nawel, or calytranthus-caryophyllifolia in sour buttermilk, about a pint of which is administered daily. In a herd of 1,000 bullocks, 200 have sometimes been affected, of whom four-fifths have been known to die.

Domma rogum, a swelling of the abdomen attended with watery purging, cough, want of appetite, great thirst and frequent passing of urine, is a disease of the hot weather. In this complaint a mash of butter-milk, onions and rice, is usually given for three days; the animal is then fired on the chest, head and flanks, after which four drams of arrack, with the yolk of an egg, are given daily for three days. When this disease prevails, a fifth part of the herd may be expected to be attacked, the mortality amounting generally to 50 per cent of the sick.

Bubba rogum, is a swelling and trembling of the whole body, in which the animal neither eats nor drinks, and there is a constant flow of saliva from the mouth. The disease occurs during the rains. In the treatment, a mixture of common salt and turmeric is rubbed on the tongue, and green gram and onions, in butter-milk, are given frequently. The number attacked when this disease occurs, has averaged 10 per cent, and the mortality amongst those attacked is about the same.

Ghalee rogum, maggots in the hoofs. Camphor, green tobacco, and soot, are mixed with ghee, and applied to the feet, about 10 in 100 of those attacked die.

Diseases of sheep. Bubba rogum in the sheep, is an eruption over the body, which is calculated to destroy about 10 per cent of those attacked. No medicine is given, it occurs in the rains.

Domma rogum, is a disease of the hot weather, in which the animal is affected with puffiness of the belly, a loose watery purging, and loss of appetite. Three lines are fired across the nose, but no medicine is given. During the prevalence of this disease, the attacks have amounted to 40 per cent of the strength, and the mortality is generally one half of those affected.

Kith komba rogum, is a very fatal disease which appears in the rains, and prevails extensively. The symptoms are

swelling of the head and face, severe purging, trembling and shaking of the body. No treatment is employed. The attacks when it becomes epidemic, amount to 60 per cent on the strength, and the mortality amongst those attacked, is fully 90 per cent.

Large flocks of sheep are reared in the district, the flesh of which is of good quality, but the fleece, or hair, is coarse, and of a black colour. Sheep generally suffer most in wet climates, but notwithstanding the dryness of the Ceded districts, it will be seen they are subject to many fatal diseases.

Roads. From the level character of the cotton ground, and the absence of stones, the roads are good in dry weather, but heavy and bad, in the wet season. Although the white calcarious earth, which lies from about two to ten feet below the cotton soil, and the red gravelly earth found about the hills, are excellent materials for constructing roads, they are not used for that purpose. The value set upon a good road is strikingly seen in the preference given to one of those leading from Bellary to Madras; the shortest being viâ Cuddapah, but it is so bad and stony, that carts never take that route from choice, but prefer the Mooglee, or Peddoonaig-droog pass, and Nundy-droog, although the ascent is 2,000 feet higher than by the other road, and the distance is greater by upwards of 20 miles; while cart hire for the shortest route only, is paid. Cotton is sent in large quantities to Madras, by return carts which bring supplies to Bellary.

The country carts in use are of a singular construction. The wheels being from one and a half to two feet in diameter, and made either of flat circular pieces of wood, or of stone slabs; the axles revolve with the wheels, and the body of the cart is well raised above them, by two straight pieces of wood on each side, in which the wheels run, but carts with large wheels composed of spokes, felloes &c., are coming into use.

Manufactures. There is a considerable manufacture of good

PLAN
of the
FORT AND ENVIRONS
of
BELLARY.
References
Lower Fort
Upper Fort
Scale of 400 ft. to an Inch.

Woollen and cotton cloths.

and cheap cumblies, woollen and cotton carpets, and cotton cloths at Bellary.

Salt.

Common salt is made throughout the district; the salt earth being scraped from the surface of the ground, and carried by buffaloes to the pans, which are usually situated near nullahs, for the convenience of obtaining water. The pans are made of clay, with an aperture at the bottom to allow the brine to run out. They are filled with the earth, from which the saline parts are drawn off by lixiviation. When the process is finished, the earth is thrown out at the side of the pans, where it gradually accumulates, forming large mounds.

Iron.

Iron of good quality is manufactured in Sundoor, and a few other places. The furnaces are small, and covered over with a thinly thatched roof. The bellows in use are made of an entire bullock's hide, and in working them, they are compressed both by the chest and arms. The iron is allowed to cool a little or harden, before it is removed, when it is drawn out from a hole of about a foot in diameter, at the bottom of the furnace; and four men then beat the red hot mass, with large wooden clubs, into a round body, somewhat larger than a man's head; it is then cut into halves with small narrow axes, about two inches broad, and allowed to cool. The clubs which are used instead of hammers, have small handles, and swell out into a large knob at the end.

Kunkar is generally found all over the district, it is burned into chunam or lime, in small kilns, by means of charcoal.

STATION OF BELLARY.

Bellary lies in 15° 5″ north latitude, and 76° 59″ east longitude, being 1182 feet above the level of the sea, which is distant 220 miles on the west coast, and 240 on the east, it being about 180 miles to the ghauts on either side. The travelling distance to Belgaum is 203 miles, to Hydrabad 223,

to Bangalore 188, to Madras 316 by way of Cuddapah, and by Chittoor and Paulsumoodrum 337 miles.

The station which is the head quarters of the Ceded districts, consists of the fort, military cantonment, bazaar and the pettah; with the Civil court, and Collector's cutcherry belonging to the Zillah.

Fort. The fort or fortified rock, around which the cantonment of Bellary is situated, is a bare granite hill, of an oblong, or rather a semi-elliptical form, the longest diameter of which extends from south to north; it rises abruptly from the plain to the height of four hundred and fifty feet, and is about two miles in circumference. Viewed on its eastern and southern sides, it presents a bold and precipitous aspect, and appears to be composed of a huge heap of loose fragments, irregularly piled on one another; but on its western face, it declines with a gradual slope towards the plain, and exhibits a smooth unbroken surface, indicating that it was originally one entire solid mass, and that, on its more exposed aspects, it has been gradually decomposed, by the continued action of the elements. At the distance of a few hundred yards to the northward, is a long ridge of bare rugged rocks of similar formation, and at a short distance to the eastward, are several lesser elevations of the same character. They are all of granitic origin, and are chiefly composed of felspar and ferruginous hornblende, the former frequently presenting large rhomboidal prisms, which strongly reflect the rays of light, and the latter being disseminated through the rock, in black shining crystals and granules, giving to it when recently fractured, a dark grey colour, but which, after exposure to the atmosphere, first assumes a dull greenish hue, and afterwards a light rusty brown, apparently from the readiness with which this species of hornblende undergoes decomposition.

The rock is defended by two distinct lines of works, constituting the upper and lower forts, both built of granite; in

the upper one, the summit of which is flat and of considerable extent, stands the citadel, it is reputed to be of great antiquity, and might be rendered impregnable; it affords however no accommodation for troops, and is consequently never occupied, except by a small guard. The cells for the prisoners are built within it and from their elevation, are at all times cool and pleasant; several tanks or cisterns have been hollowed out in the rock, for the purpose of retaining rain water. The lower fort, which is of more recent construction, consists of low turrets connected together by curtains, is of a quadrangular figure, has a dry ditch and covered way in front, and surrounds the base of the rock, from its south-western, to its north-eastern angle; it is half a mile in diameter, and within it are the barracks for the Queen's regiment, and the Company's European artillery, the arsenal, the ordnance and commissariat stores, the protestant church, and numerous bungalows for officers.

The soil is artifical, and much impregnated with saltpetre; the wells within the fort are therefore all brackish, and the water used by the troops, is brought from without.

On the south side of the fort, about 100 yards from the rampart, is a large tank, with a road running along its edge; to the north, at the distance of 200 yards, is a rocky hill of granite; on the south west the ditch is widened, and walled up at one end so as to form a tank, which is filled by the rain from the upper fort, and which descends from the rock in cascades during heavy showers; and on the east, is a wide esplanade containing the burial ground, beyond which is the zillah court, jail, collector's cutcherry, and the houses of the principal European gentry. South east of the fort, and below the bund of the tank, is the pettah, in which the former inhabitants of the fort now reside, having been removed out in 1816, at a considerable expense to Government; at the head of the tank is the bazaar, and at the distance of about half a mile, lies the cantonment, with the native barracks and officers' houses.

According to a census taken in 1837, the population amounted to,

	Males.	Females.	Children.	Total.
Cowl bazaar.....	6,076	4,559	4,937	15,572
Bruce pettah.....	4,597	4,979	5,287	14,863

The soil about the fort for the distance of a mile, on three sides, is red and gravelly; a strip of black cotton ground about half a mile in breadth, runs through the cantonment on the south, on which the houses are generally built. The ground slopes in all directions from the fort and cantonment, so that no water lodges in the neighbourhood, and there are no marshes in the district.

The plain around Bellary is flat, presenting scarcely any undulations; it is wholly destitute of jungle, lightly covered with verdure, and from want of water is but little cultivated. At the distance of about six miles to the westward, it is bounded by a low range of hills, scantily clothed with vegetation, which are composed of chloritic slate, traversed by greenstone dykes; to the eastward, it presents to the view a vast level expanse, studded with isolated masses of bare granitic rocks, and exhibiting in the distance detached ranges of low barren hills; apparently of similar formation. The prevailing soil, is what is termed black cotton ground, consisting of a dark tenacious loam, extremely fertile, and in many places strongly impregnated with saline materials, especially nitre which is obtained in considerable quantities by lixiviation, during the dry season, and constitutes an article of commerce. This kind of soil every where predominates, except immediately around the granitic elevations, where from the disintegration of the rocks, it is light, and sandy, through which water readily percolates.

There are no rivers, nor marshy grounds within some miles of the cantonment; and the only appreciable source from which malaria can be supposed to arise, is the large tank, which is situated to the south east of the rock, and approaches within a few yards of the fort. This when full, is

upwards of three miles in circumference, but being for the most part extremely shallow, it is soon reduced during the dry season, to half that extent, by the rapid evaporation from its surface. In this half dried state, noxious exhalations have been supposed to issue from it, giving origin to remittent fever which has occasionally prevailed here; but some other causes however, must be referred to as capable of producing this form of fever, as it has occurred during seasons, when the tank was completely filled. There is another but a much smaller tank, which extends along the western base of the rock, and terminates at the fortifications, where it may be made, in case of emergency, to communicate with the dry ditch; it is the source from which the garrison and the inhabitants are supplied with water for culinary and other purposes.

Climate. The climate is characterized by the extreme dryness of the air at all times; the annual fall of rain being very limited, dews in general are light, and last but for a short time, and there are no heavy fogs.

The wind blows principally from the west and north-west, from March to November; and from the east and south-east in December, January and February, but with considerable daily variations. In the hot season, a strong wind generally blows from the westward during the night, oppressive calms or lulls are not common, and usually occur about sun set, in the hot weather. The hottest part of the year is from the beginning or middle of March, to the end of May, or the setting in of the south-west monsoon. The most oppressive part of the day is usually from 2 to 7 P. M., but the nights and mornings are comparatively cool, even at the warmest period of the year. In the cold season, the thermometer in the open air, falls to 55° in the morning, and at times even below 50°, and rises to about 100° at 2 P. M., in the sun. The glare is at all times very great from the white sparkling nature of the ground, which, as well the roads, is composed of the debris of granite rock; and verdure con-

tinues only for a short time, owing to the little rain which falls, and to the dry rocky nature of the soil. Lightning and thunder occur occasionally from April to July, and again in September and October. The thunder is usually very loud, and a year seldom passes without the electric fluid injuring buildings or persons within the limits of the fort, or cantonment, and similar accidents are likewise by no means rare in the district.

The following table exhibits the average height of the thermometer at sunrise, between noon and 2 P. M., and at sunset; and also the amount of rain for each month, during the two years ending 1842. The thermometer was kept in the dispensary of the European garrison hospital, a low tiled building without verandahs.

	1841.				1842.			
	Thermometer.				Thermometer.			
	Sunrise.	12 to 2 P. M.	Sunset.	Pluviometer Inches.	Sunrise.	12 to 2 P. M.	Sunset.	Pluviometer Inches.
January....	78	84	82	0 0	74	84	83	0 0
February..	74	87	85	0 02	73	84	84	0 0
March....	83	92	92	0 03	81	97	90	0 0
April.....	86	94	94	4 19	86	99	90	0 02
May	84	92	92	0 09	82	92	100	1 81
June.....	81	86	85	4 40	76	86	84	2 75
July.....	80	85	83	1 17	79	85	84	0 60
August....	79	83	82	6 10	77	83	82	1 74
September..	75	75	78	4 61	78	83	81	8 44
October....	78	83	82	5 38	79	84	83	2 21
November..	73	82	81	0 39	76	82	82	0 03
December...	72	81	81	0 02	73	81	80	0 0
				Total. 26 40				Total. 17 57

European barracks. The barracks of the European troops are situated within the fort; there are two distinct buildings for the infantry, about 560 yards apart, the first appropriated to the right wing of the regiment, is built on high ground close to the ramparts, on the south side, nearly overlooking the tank; and that of the left wing, is near to the ramparts on the north, on lower ground; each is constructed in the form of a square, having a verandah all round; the

roofs are pent and tiled, with ventilators. The artillery barrack is upon high ground, close to the base of the rock, and about 100 yards from the infantry right wing barrack; it is in the form of three sides of a square, and has a row of pillars in the centre of the rooms, to support the roof which is tiled, and without ventilators. Each of these buildings is surrounded by a high wall. The plan of erecting barracks in the form of a square, is objectionable in a country like India, where free ventilation is so very necessary, and the doors and windows are not sufficiently numerous, being in the infantry 15 feet apart, and in the artillery barracks, from 12 to 28 feet. To regulate and command the temperature and currents of air, the doors should be venetianed to the ground, the windows should be long, narrow and in two compartments, the lower being venetianed, and extending to within a foot of the floor, and the upper both venetianed and glazed. The space between the windows, or windows and doors, should be sufficient for two cots, with their heads to the wall, so that each man would be close to either a door or a window, and enjoy a sufficiency of light, fresh air, and coolness. The two latter are absolutely requisite to health in this country, and can only be obtained, in sleeping apartments, by an adequate number of doors and windows.

Barracks are in course of erection, calculated to accommodate a wing of an European regiment, on open elevated ground near the garrison hospital, and are getting on rapidly; they are considered to be the best buildings of the kind to be seen in this country for European soldiers.

European hospitals. There is also an old European hospital in the fort, which is used as a receiving hospital for cholera patients, and for the sick women, and children of the regiment.

The new European hospital is situated in a fine, open, dry plain, about a mile to the westward of the fort, and is calculated to contain 130 patients.

The military cantontment, and the lines of the native troops, are situated at a short distance on the western side of the rock

while the General officer commanding the division, with the military staff, and officers of the civil service, reside on the opposite side; at the distance of a little more than half a mile to the south-east, is the native pettah, said to contain nearly fifteen thousand souls; and about the same distance to the south-west, is the cooly bazar, separated from the former by the head of the large tank.

Native barrack and hospitals. The native barracks or places of arms, ten in number, are situated about a mile to the south-west of the fort, they have a southern aspect, are built of stone, and have tiled roofs. They can accommodate three regiments of native infantry, and one of cavalry.

The hospitals for native troops, adjoin the places of arms, and consist of three buildings, one of which contains two wards, sufficient for the sick of two regiments, another is the native garrison hospital, which is formed of the most western place of arms, and the third is the cavalry hospital.

Tables of disease (from No. 1 to No. 10) amongst the European and native troops, with some remarks are given at the end of the report of this division, as in the preceding reports; it remains however to give here some account of those amongst the prisoners in the jail.

The Court house, jail and hospital are situated in one large compound to the eastward of the fort, about half a mile distant, and close to a small rocky hill, which protects them in some measure, from the strong unpleasant north-west winds which prevail during several months of the year. The site is high and dry, and there are no marshes in the neighbourhood.

Jail. The jail consists of several buildings, for the various classes of prisoners, in separate areas; the whole forming an oblong square, surrounded by a high wall, sufficiently distant to allow a free circulation of air. The department for the male convicts consists of 21 cells, each fourteen feet in breadth and varying in length from nine to thirty;

that for the female convicts contains 6 cells, each fourteen feet square; the jail for prisoners under trial consists of 8 cells, each fourteen feet square. The different courts are spacious; the cells are of a good height and well built and are freely ventilated, and kept remarkably clean; there is no water within the jail, and the prisoners procure and carry it for their own use, from two large wells in the outer compound.

A table shewing the diet, clothing, labour &c. is given as usual at the end of the report. In this jail prisoners of the same câste are allowed to club together in small messes, and to cook their food as they please. The kitchens for the various câstes are very convenient.

Hospital. About 50 yards from the principal entrance to the jail is the hospital in a separate enclosure; it is terraced and consists of two wards, the one 37 by 14, the other 18 by 14 feet; the windows are large and both wards are well ventilated, the floors are of mud and raised two feet from the ground. The offices attached to it consist of a surgery, store room, two cooking rooms and a necessary, all in a state of good repair.

Behind the hospital in a separate court yard are five small cells for insane prisoners, each 14 by 12 feet; when unoccupied by people of this class, some of the prisoners under trial are placed in them.

The male convict jail was built in 1808, the female ditto, the jail for prisoners under trial or civil jail, and the hospital, in 1818, the cells for lunatics in 1826; and a tiled verandah was erected round the inner side of each of these buildings in 1829.

The following tables shew the nature and amount of disease and mortality from each class of disease, with the percentage of sick to strength, and of deaths to disease, during ten years ending December 1838.

JAIL OF BELLARY.

No. 11.—*Table exhibiting the number of Admissions and Deaths of the Convicted Prisoners, from each class of Disease for 9 years.*

CLASSES.	DISEASES.	exclusive of 1831. From 1829 to 1838. Aggregate strength 5,058. 1st Half. Ad.	1st Half. Dd.	2d Half. Ad.	2d Half. Dd.	Admissions and deaths from each class of disease. 1st Half. Ad.	1st Half. Dd.	2d Half. Ad.	2d Half. Dd.	Total admissions from each class of disease.	Total deaths from each class.	Average per centage of sick to strength.	Average per centage of deaths to sick.
Fevers.....	Febris ephemera	4	1	21	0								
	„ intermit quot.	237	21	194	12								
	„ tertiana.....	1	0	0	0	268	34	226	21	494	55	9 ·766	11 ·133
	„ remittens. ..	22	11	10	9								
	„ continua.....	4	1	1	0								
Cholera.....		1	0	28	22	1	0	28	22	29	22	0 ·573	75 ·862
Diseases of the abdominal viscera.....	Diarrhœa	39	8	87	42								
	Dysenteria acuta et chronica..	87	13	116	36	126	21	203	78	329	99	6 ·504	30 ·091
Diseases of the lungs and heart.	Catarrhus.....	1	0	1	1								
	Asthma.....	0	0	1	1								
	Pneumonia.. ..	2	2	2	1								
	Phthisis pulmonalis.....	5	2	5	2	9	4	9	6	18	10	0 ·355	55 ·555
	Hœmoptysis....	1	0	0	1								
Diseases of the brain.	Epilepsia.....	1	0	1	0								
	Apoplexia.....	1	1	1	1								
	Paralysis.....	1	0	2	0	4	1	6	2	10	3	0 ·197	30 ·000
	Mania.....	1	0	2	1								
Eruptive fevers.....	Variola.....	5	4	0	0								
	Varicella.....	21	0	3	0								
	Rubeola..	0	0	0	0	26	4	3	0	29	4	0 ·573	13 ·793
Dropsies....	Anasarca.....	12	5	9	6	12	5	9	6	21	11	0 ·415	52 ·380
Rheumatic affections.	Rheumat. acutus et chronicus	78	7	65	13	78	7	65	13	143	20	2 ·827	13 ·986
Venereal affections ..	Syphilis primitiva.....	10	1	7	0								
	Gonorrhœa.....	1	0	1	0								
	Hernia humoralis.....	1	0	0	0	12	1	8	0	20	1	0 ·395	5 ·000
Specific diseases.....	Atrophia.	22	15	34	16								
	Elephantiasis....	1	0	0	0								
	Dracunculus. ...	107	1	10	3								
	Beriberi.....	24	16	16	4	162	33	68	23	230	56	4 ·547	24 ·347
	Scrophula.....	8	1	8	0								
Diseases of the eye...	Morbi oculorum	19	0	28	1	19	0	28	1	47	1	0 ·929	2 ·127
Do Skin.	„ Cutis..	145	0	194	1	145	0	194	1	339	1	6 ·702	0 ·29
	Other diseases..	449	4	443	17	449	4	443	17	892	21	17 ·635	2 ·35
	Total..	1311	114	1290	190	1311	114	1290	190	2601	304	51 ·423	11 ·68

JAIL OF BELLARY.

No. 12.—*Table exhibiting the Number of Admissions and Deaths of the Prisoners under Trial, from each class of Disease for 9 years.*

CLASSES.	DISEASES.	exclusive of 1831. From 1829 to 1838. Aggregate strength 1304. 1st Half. Ad.	1st Half. Dd.	2d. Half Ad.	2d. Half Dd.	Admissions and deaths from each class of disease. 1st Half. Ad.	1st Half. Dd.	2d. Half. Ad.	2d. Half. Dd.	Total admissions from each class of disease.	Total deaths from each class.	Average per centage of sick to strength.	Average per centage of deaths to sick.
Fevers	Febrise, hemera	0	0	0	0								
	,, intermit quot.	21	3	17	0								
	,, tertiana	0	0	0	0	31	8	24	6	55	14	4 .217	25 .454
	,, remittens	10	5	6	5								
	,, continua	0	0	1	1								
	Cholera	1	1	3	3	1	1	3	3	4	4	0 .306	100 0
Diseases of the abdominal viscera	Dysenteria acuta et chronica.	21	7	50	19								
	Diarrhœa	9	7	25	13								
	Colica	2	0	0	0	35	14	79	32	114	46	8 .742	40 .350
	Dyspepsia	3	0	2	0								
	Hepatitis acuta et chronica	0	0	2	0								
Diseases of the Lungs	Phthisis pulmonalis	1	0	3	1	1	0	3	1	4	1	0 .306	25 000
Diseases of the Brain	Apoplexia	2	1	2	1								
	Epilepsia	1	1	1	0								
	Paralysis	1	0	0	0	9	2	20	2	29	4	2 .224	13 .793
	Mania	5	0	17	1								
Eruptive fevers	Varicella	1	0	0	0	1	0	0	0	1	0	0 .076	0 .000
Dropsy	Anasarca	1	1	5	4	1	1	5	4	6	5	0 .460	83 .333
Rheumatic affections	Rheumatismus ac. et chronicus	7	1	9	0	9	1	9	0	18	1	1 .380	5 .555
	Odontalgia	2	0	0	0								
Venereal affections	Syphilis primitiva	8	0	3	1	9	0	3	1	12	1	0 .920	8 .333
	Gonorrhœa	1	0	0	0								
Specific diseases	Atrophia	10	2	8	1								
	Beriberi	27	14	32	17	61	16	47	21	108	37	8 .282	34 .259
	Dracunculus	24	0	7	3								
Diseases of the Eye	Morbi oculorum	2	0	4	0	2	0	4	0	6	0	0 .460	0 .000
Do. Skin.	,, cutis	44	0	28	0	44	0	28	0	72	0	5 .521	0 .000
	Other diseases	76	6	58	4	76	6	58	4	134	10	10 .275	7 .462
	Total	280	49	283	74	280	49	283	74	563	123	43 .176	31 .847

The average annual numerical strength of the convicts during the nine years, has been 562, and the admissions 289, or 51·423 per cent; while the number of deaths annually during the same period, has averaged nearly 34, or 6·010 per cent on the strength; the total number of admissions being 2601, of deaths 304, and the aggregate strength, 5058.

Amongst the prisoners waiting for trial, the admissions into hospital have amounted to 563, and the deaths to 123, from an aggregate strength of 1304; the per centage of sick being 43·176 and of deaths 9·432 to strength.

The most numerous admissions amongst both classes of prisoners have been from *fever, bowel complaints, rheumatism, atrophy, and beriberi;* and the greatest mortality has been occasioned by the same diseases.

In the following table No. 13, are exhibited the annual admissions and deaths from eight of the principal diseases, viz. fever, cholera, diarrhœa, dysentery, anasarca, rheumatism, atrophia and beriberi. The total sick treated and mortality are also given, for the purpose of shewing the proportion of the whole mortality produced by these diseases; being 359 out of 427, or somewhat more than 5—6th.

Table No. 13.

Jail of Bellary.

		1829.		1830.		1832.		1833.		1834.		1835.		1836.		1837.		1838.		Total.	
		Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Convicts.	Fever	39	1	86	6	101	8	44	8	58	7	72	9	61	7	25	7	8	2	494	55
	Cholera	0	0	0	0	0	0	3	2	0	0	0	0	0	0	26	20	0	0	29	22
	Diarrhœa	20	1	8	2	21	5	10	5	38	25	9	3	6	2	9	5	5	2	126	50
	Dysentery	9	0	15	3	61	8	40	10	39	13	2	9	8	5	4	0	4	1	203	49
	Anasarca	2	0	0	0	9	8	2	2	0	0	4	0	1	0	3	1	0	0	21	11
	Rheumatism	13	0	11	1	22	3	18	4	31	9	22	2	11	0	4	0	11	1	143	20
	Atrophy	0	0	0	0	0	0	0	0	3	1	33	18	13	10	0	1	1	1	56	31
	Beriberi	0	0	0	0	1	0	56	17	3	3	0	0	0	0	0	0	0	0	40	20
	Admissions and deaths from these diseases	83	2	120	12	215	32	153	48	172	58	169	41	100	24	71	34	29	7	1112	258
	Total admissions and deaths	234	3	325	14	352	37	347	54	480	70	422	50	243	29	116	38	82	9	2601	304
	Strength each year	396		433		533		592		913		773		635		508		275		5058	
under Trial.	Fever	1	0	6	0	8	1	11	6	13	1	8	1	2	1	0	0	6	1	55	11
	Cholera	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2	0	0	4	4
	Diarrhœa	0	0	2	1	5	3	7	4	16	9	0	1	1	0	1	0	2	2	34	20
	Dysentery	0	0	4	0	9	7	32	9	13	4	4	3	3	2	3	1	3	0	71	26
	Anasaera	2	2	2	1	0	0	0	0	0	0	2	2	0	0	0	0	0	0	6	5
	Rheumatism	1	0	2	0	1	0	5	1	0	0	6	0	0	0	0	0	1	0	16	1
	Atrophy	0	0	0	0	0	0	0	0	2	1	15	2	1	0	0	0	0	0	18	3
	Beriberi	0	0	0	0	0	0	53	27	6	4	0	0	0	0	0	0	0	0	59	31
	Admissions and deaths from these diseases	4	2	16	2	23	11	110	49	50	19	35	9	7	3	6	3	12	3	263	101
	Total admissions and deaths	9	2	48	2	52	15	155	54	145	28	90	11	23	4	10	4	31	3	563	123
	Strength each year	24		102		154		365		366		141		43		46		72		1204	
	Admissions and deaths amongst both classes of prisoners	243	5	373	16	404	52	502	108	625	98	512	61	266	33	126	42	113	12	3164	427
	Total Strength each year	420		535		687		948		1279		914		678		554		347		6362	
	Per centage of deaths to strength	1	·190	2	·990	7	·569	11	·392	7	·662	6	·673	4	·867	7	·581	3	·458	6	·711
	Per centage of sick to strength	57	·857	69	·719	58	·809	52	·953	48	·866	56	·017	39	·233	22	·743	32	·564	49	·732
	Per centage of deaths to sick treated	2	·057	4	·289	12	·871	21	·513	15	·680	11	·914	12	·406	33	·333	10	·619	13	·495

The following extracts from the reports of the medical officers in charge, will explain many of the points, which may excite surprise, in the preceding table.

"From the circumstance of the Bellary jail having been constituted a general Depot for prisoners, there have been frequent draughts from Chittoor and Salem, many individuals from amongst whom were admitted into hospital with dysentery, and several died. Old men were the greatest sufferers, and it has been observed, that, when any of this description were attacked with dysentery or fever in a severe form, the powers of the constitution had become too feeble to struggle against the disease, a desponding apathetic state of mind soon succeeded, with indifference to life, and a disinclination to take food or medicine." *Dated 1st July*, 1832.

"A good deal of sickness has prevailed in the jail of Bellary during the last six months, and more than the usual proportion of deaths has occurred, for which it is difficult to assign a sufficient reason; no change has taken place in the diet or labour of the prisoners. It may perhaps be correctly attributed to a peculiar state of the atmosphere, attending the failure of the north-east monsoon."

"The complaints have been those generally met with amongst prisoners, (fever and bowel complaints), but greatly aggravated by despondency and lowness of spirits, and perhaps latterly from apprehension of the fate of but too many with affections smiliar to their own. A great many when apparently convalescent lost their appetite, became leucophlegmatic, and eventually dropsical, which proceeded to general anasarca, and terminated in death, in spite of all treatment, which in fact seemed to have very little effect. Several of these cases resembled beriberi in many of the symptoms, and were treated as such, with calomel, squills and digitalis, and active purgatives, but without any benefit." *Dated 31st December*, 1832.

The famine which in 1833, prevailed throughout the Carnatic, extended to this part of the country, and was severely

felt over the entire Ceded districts; to it may be attributed the unusual mortality which occurred in that year. It was observed that the prisoners crowded into the jail in proportion as distress and starvation became more and more pressing, for many committed offences, to gain admission into the jail, that they might obtain food. And as might be expected, the wretched individuals admitted under these circumstances, were peculiarly liable to the invasion of disease, and, as will be observed, one half of the whole mortality in that year, took place amongst the prisoners waiting for trial. It is worthy of record that although cholera prevailed to a great extent in the bazar and amongst the troops in the fort, (especially during the first half of the year), only 5 cases with 4 deaths occurred amongst the inmates of the jail.

The rains were very deficient during the succeeding year, 1834;—and a reference to the table will exhibit a continuance of the same diseases, and great mortality, and a crowded state of the jail.

In 1835, the jail was still greatly crowded, and the mortality much above the average, and it is recorded that "the deaths have generally occurred after protracted illness, the prisoners do not (in many instances) regain their health and vigour after attacks of disease, as others differently situated would do, and in this enfeebled state, they are subject to relapses or invasions of other forms of disease, as bowel complaints and dropsical affections under which they ultimately sink."

Some prisoners fall into this state of debility without any previous attack of acute disease, and these cases are classed under the head *atrophia;* confinement and the depressing passions appear to be the principal causes in keeping up and producing this state of the system, and to them is conjoined advanced age in some of the cases." *Dated* 1835.

During the remaining three years the number of prisoners was considerably reduced, especially in 1838, and (with the exception of an epidemic visitation of cholera in the latter half of 1837, which carried off 22 men,) the mortality has

also greatly diminished; several hundred prisoners were removed from this jail to work on the great western road during these three years.

On looking at the results of the two first and last two years in the preceding table it would appear that the jail of Bellary is comparatively healthy, when the number of prisoners do not much exceed 500. It must be remembered however that the usually fatal diseases in jails are occasionally less frequent, or absent altogether for some years; still there can be no question, that, when a large number of human beings are crowded together in a limited space, their state of health and vigour must suffer and decline, and the ordinary diseases, especially bowel complaints, then assume a peculiar form.

Many of the prisoners are Brinjaries, a class of people accustomed to live day and night in the open air, and upon whom the confinement in the jail must act very perniciously; a melancholy instance of which is thus recorded. "One of this class (Brinjarie) a young man, who died of atrophia during the last six months, requested sometime before his death to be allowed to lie in the open air, saying at the same time that he was a *jungle-walla*, and had never inhabited a house, and that the confinement in the cells did not agree with him." *Dated 30th June*, 1836.

With regard to the prevalence of the disease *beriberi* in the years 1833, and 1834, some remarks will be given hereafter in the account of the jail at Cuddapah.

CANTONMENT OF CUDDAPAH.

Situation of the cantonment of Cuddapah.

Cuddapah, a station for a native regiment, is situated on a gentle declivity, nearly in the centre of the district, being in latitude 14° 32″ north, and longitude 78° 54″ east. It is distant 166 miles north west of Madras; 152 south east of Bellary; 242 south of Hyderabad; 83½ west of Nellore, and 154 north east of Bangalore; and is 507 feet above the level of the sea.

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Boundaries. The cantonment is bounded on the east, by a small river which separates it from the town of Cuddapah, from which it is distant about three miles; on the west, by an extensive and open plain, stretching with little interruption to Ghooty; on the north, by the Bellary road, some cultivated ground and a large tank; and on the south, by a road on its left flank, and by cultivated ground.

Mountains &c. The mountains in the vicinity form an uninterrupted chain of great extent, consisting of numerous parallel and continuous ridges, which rise abruptly from the plains, traverse the whole length of the district, and constitute part of the eastern ghauts.

Near Chinnoor, six miles north of the cantonment, the western connecting ridges of this elevated chain, take a south eastern direction, until within two miles of Cuddapah, where they are intersected by the Pennar river, which winds between them in an easterly course. They thence proceed south-west to Bakrapett, ten miles from Cuddapah, where they separate into two ranges, one running south, and the other west, the latter becomes identified with another but lower range, which taking its rise near the Toombuddra, runs in a semicircular direction by Bungunpully and Ghooty; from thence it turns south-east to Gundicotta,—above the ghaut—where it is intersected by a remarkable breach, the sides of which are elevated upwards of 200 feet from the base, and through which the Pennar river flows.

About 34 miles from Cuddapah, the range becomes connected, with the eastern ghauts; hence the plain of Cuddapah is encircled by a chain of mountains, which greatly modify its climate. Those on the west, distant upwards of thirty miles, do not seriously affect it, but, as will appear hereafter, those on the north-east, and south, being within from three to six miles, have the most injurious influence. Within a mile or two of their bases, the old and new towns of Cuddapah, and three miles further west, the cantonment, are en-

closed within a mountainous amphitheatre, varying in elevation from 1,000 to 1,500 feet, the extremities of the arc being about 12 miles apart. (see sketch).

Hills. The ranges of hills towards the south, differ from the above in physical characters, not only in consisting of isolated hills, but also by their pyramidal form, with summits terminating in sharp and precipitous cliffs, or abruptly truncated, or round backed; while the other ranges are long ridges, some hogbacked and ribbed, with the sides deeply excavated by mountain-torrents, the bases of which form an unbroken abutment of perpendicular rocks, from 50 to 60 feet in height, presenting the appearance of gigantic walls artificially constructed.

None of the hills possess the requisites for a sanatarium, on the contrary, they have been found unhealthy; such Europeans, as have been induced to visit them, in quest of a cooler climate during the hot winds, have all suffered more or less, and some have even died of bilious remittent fever contracted there. Nor is this more than might be expected from their character, being covered with low dense jungle, and long rank grass.

Muddenpilly. The Muddenpilly range however, 56 miles south west of Cuddapah, is an exception in some respects, forming a pleasant cool retreat in the hot season. The table land is extensive, but unfortunately, after the first rains in June, fever becomes common. During the months of March, April and May, when Cuddapah is insufferably hot, and the whole face of the low country, is that of an arid desert, Muddenpilly presents the most delightful contrast, both in climate and scenery, the temperature seldom exceeding 87° during the day, and the nights being refreshingly cool, while the place abounds in fruitful gardens, shady topes of trees, and green valleys.*

* Extract from an Officer's journal dated May 1837.
"The thatched bungalow at Royachooty, built by an Officer of a Regiment stationed here several years ago, is situated on the summit of a range of hills, and nearly a mile to the south of the village, commanding an extensive view of the country, which rises gradually from Neelacuntroypett (a village at the southern extremity of the ghaut, and

Before Cuddapah was made a military cantonment, a native regiment was stationed at Royachooty, 33 miles to the southward. The country in this vicinity being an elevated, undulating and open plain, from 2 to 300 feet higher than Cuddapah, and though the temperature during the day, is as high, as at the latter place, the nights are always cool, an advantage of the greatest importance to convalescents.

Rivers. The chief river is the Pennar, which rising in the mountains of Nundydroog, and holding a northerly course as far as Ghooty, enters the district near Tallapodatoor, on the Bellary road, and after describing many windings, flows to Chinnoor, and passes by Sedhout within nine miles of Cuddapah, from whence taking an easterly course, it enters the sea at Gungaputnam.

While within the district it first receives the Coond river which has its source in the mountains on the north-east, and flows southerly to join the Pennar near Camlapoor; about nine miles from this village, and close to Appiapully, the Pennar

12 miles from Baukrapett on the northern or Cuddapah side) until it assumes the appearance of an elevated steppe, of huge rocky barren hills, some continuous, others isolated, while the enclosed plains are apparently a wild dreary, unproductive waste, without a single tree to meet the eye, miserable villages being seen here and there, with spots of cultivation. At 6 P. M. of the 5th started to visit the palace at Gorremcondah (21 miles distant.) The building is a bad imitation of the Laul Baugh at Seringapatam, being inferior both in extent of accommodation, and elegance of architecture, and is now in a complete state of dilapidation. The fall in the thermometer which stood at 98° at Royachooty, to 88° at Gorremcondah, was delightfully refreshing. The mountain of Gorremcondah is one majestic, almost perpendicular mass of granite, towering to the height of about 8 or 900 feet. The rock is throughout naked, and its convex summit is crested with a strong fortification, constituting a formidable hill-fort, inaccessible, save on the eastern face, where a narrow difficult pathway winds through a defile of projecting rocks which, through the disintegrating influence of ages, have been rent from the mountain. Here stood once the capital of the district of Gorremcondah (at present comprehended in that of Cuddapah,) but now a heap of shapeless ruins, the haunt of beasts of prey, such as jackals, hyenas, &c. and the source of deadly malaria, the noxious influence of which is seen in the sickly and dropsical appearance, the premature senility, the anasarcous extremities and enlarged spleens, of the squalid and thinly scattered population of the neighbouring country which though much more elevated than that of Royachooty, is over grown, particularly between the hills, with low dense jungle, while the country about Royachooty, is perfectly open and free from underwood. The natives too complain of the water being bad, and it is certainly much imbued with saline materials. At 5 P.M., on the 6th, left the palace and having arrived next day at Muddenpilly, 23 miles distant, was no less astonished than delighted, to find within so short a distance from the burning plains of Cuddapah, its perfect contrast in scenery, and climate. Here are two small bungalows, enclosed in an ample park of several acres, planted on either side with the most magestic banyans, around is a lawn of beautiful green turf; in the heat of the day the thermometer did not rise above 87°, and the air free refreshing, soft and balmy, and imparted an elastic and exhilarating influence both to body and mind. The gardens produce grapes, both of the green and purple varieties, as well as peaches, strawberries, apples and guavas. Another striking instance of the contrast between this climate and that of Cuddapah, is the backward state of the season here. Mangoes do not ripen until July, and are pulled *green* to be ripened *artificially*. The cholum and raggy crops, which are stacked in the end of February at Cuddapah, were not yet reaped, water was found to boil at 208° of Fahrenheit, the elevation may therefore be stated at 2,120feet above the sea, and about 1620 above Cuddapah.

is joined by the Papugny, coming from the opposite direction. This last river arises in the hills east of Muddenpilly, and emerges from them at Vaimpully. Through the sandy bed of this river, which is about 100 feet in width, with precipitous banks, the 28th Regiment passed round these hills on route from Cuddapah to Mercara, via Royachooty in February 1838; the ghaut above Bakrapett being impassable, owing less to the steepness of the ascent, which is only between 7 and 800 feet above Cuddapah, than to the state of the road.

Two nullahs having their sources in the hills to the south-west of Cuddapah, run in a north-easterly direction. The more western of them, the Boogawunkah, winds immediately in front of the regimental lines, (see sketch No. 2) where it is from 20 to 30 yards in breadth, but is never full unless in very heavy and continued rains, when its depth is between three and four feet; its rise and fall however, are very rapid, and in dry weather it is merely a chain of small pools. Its bed being deep, having in it numerous quicksands, and there being no bridge across, it prevents the evening drive being extended in the direction of the town of Cuddapah. The other nullah, called the Cuddapah river, is much larger, and sweeps immediately along the west of the town, which it supplies with water. Across the latter which is about 40 yards in width, there is a bridge, along which the road to Bellary passes,; and a little to the north, both the nullahs converge, and ultimately uniting, disembogue themselves into the Pennar four miles north of Cuddapah.

Proceeding east, the next rivers which discharge their waters into the Pennar, are the Sugglear and the Chegar. The districts south of the Pennar, are drained by the Papugny, and the Chegar rivers, and their tributaries; and the valley of Cuddapah, by the two mountain streams above described; while the country to the north, is drained by the Coond and Sugglear, with their respective streams.

With the exception of the Pennar, none of these rivers much exceed 150 feet in width, their beds are generally sandy,

with low banks, the Pennar however, which runs through a soft soil, and is 80 yards in breadth, has banks in some places upwards of 16 feet in depth; the current, owing to the country being nearly a perfect level, seldom exceeds two miles an hour, though the mountain streams are as usual rapid. In seasons of drought, which not unfrequently occur, some of these streams become rapidly dried up, when the vegetable and animal deposits in them, are exposed to the intense rays of the sun, and prove a source of miasm, this circumstance appears to contribute to the origin and prevalence of epidemics in such seasons. In the hilly parts of the district, their banks which are fringed with low dense jungle, are composed of rocks, and detritus, but in the plains, they sweep along gardens and cultivated fields, numerous wells being excavated on their banks.

Tanks. Tanks are also every where to be seen, in which fish are both few and bad, though highly valued by the inhabitants.

Climate. The most prominent characteristics of this climate, are, intense heat during the day, with oppressive closeness and stagnation of air, at night. These two conditions of the atmosphere, go far to explain its enervating influence on the European constitution. The temperature is not only one of the highest known (the mean, in the shade, during the year, being 81° 4″, the maximum 98°, and the minimum 65°,) but the daily range within doors, is very considerable, being from 15° to 20°, and the difference of the annual extremes 33°.

The year may be divided into three seasons, viz: the cool, the hot and dry, and the hot and humid.

1st. The cool season commences in October, and continues till February; about the end of October the north-east monsoon sets in, generally with thunder storms, and vivid lightning, preceding a heavy fall of rain.

In 1837, the rain set in in October, and continued with little cessation until the 12th November, being the heaviest fall known for 30 years.

About the end of November the monsoon generally ceases, but in some years it fails altogether. During this season the wind is steady from north east, and the weather is exceedingly pleasant, the whole country is under cultivation, and the luxuriancy of the crops every where, testifies the fertility of the soil. The mornings are cool, the thermometer in the open air, at 5 o'clock A.M. being often as low as 60°, and in the shade, between 65° and 70°, the mean temperature being 77°, the maximum 89°, and the daily range from 15° to 20°. The atmosphere is particularly clear, and the nights cool; towards the middle of February, the weather begins to get hot, and Europeans cannot remain out of doors later than 8 o'clock A.M.

2d. The crops in the valleys are all reaped and stacked in February, and in March the country begins to present an altered appearance, and as the month advances, the wind blowing strongly from the east, becomes hot at midday, but the nights continue cool for some time; as the season advances vegetation disappears, the grass becoming burned up, and the country at last resembles a dreary, sandy waste.

In April and May, the atmosphere glows intensely; and the rapidity of evaporation, particularly in the latter month, is shown by the state of the tanks, whose slimy beds become exposed to the rays of the scorching sun. In April the air is almost perfectly calm, interrupted only by occasional, light, uncertain airs during the day, which fail altogether at night, and the heat of the still atmosphere, becomes increased by radiation from the neighbouring rocks,* which form a screen intercepting ventilation. It is impossible to sleep within doors at this season, and even in the open air, the nights are often passed in a feverish and restless state; in May, the nights are likewise oppressive, for, though the regular hot winds set in from the westward, about the 3d of that month, by which, through the medium of wet tatties, the house during the day, can be made tolerably cool, after sunset the winds fail altogether.

* That the immediate vicinity of the hills has the effect of rendering the nights so hot at Cuddapah, is evident, from the fact, that in all other parts of the district, as well as throughout Bellary, the nights are found to be cool.

The mean temperature of this season of the year, is 84° 8″, the minimum 69°, and maximum 98°, in the shade.

3d. The south west monsoon sets in early in June, several days before which the weather becomes close and oppressive, and the sensation of suffocating heat at night, is almost insupportable, respiration becomes laborious, and the mind is dejected from the stagnant, and condensed state of the atmosphere. At length flashes of lightning are seen, and loud distant peals of thunder are heard rolling on, increasing in frequency as the rain commences, which continues to fall in torrents for some hours, cooling and refreshing the atmosphere. These visitations however are often very partial, and confined to the neighbouring hills, whilst the valleys are scorched with heat, and enveloped in clouds of dust, which being almost in an impalpable state, and driven along by the winds, penetrates into every crevice. During this season a strong south-westerly wind blows all day, and as the rain is seldom sufficient to saturate the surface, the whole atmosphere is darkened with clouds of fine sand, which even closed doors, and glass windows, fail to exclude. At sunset the wind usually moderates, and subsides into an oppressive calm, still more distressing from the air being humid, thus increasing the relaxation and exhaustion, consequent on want of sleep.

Cuddapah being upwards of three times the distance from the western, that it is from the eastern coast, and in a valley 300 miles north-east of the mountains of Coorg, from which direction the periodical winds blow, is most unfavorably situated, with respect to the south-west monsoon; for long before the rains can reach it, they have been almost entirely arrested by, and expended on the lofty chain of the western ghauts. That this is actually the case, is evident from the fact that, even at Fraserpett, only 19 miles east of Mercara, the capital of Coorg, and 1300 feet lower; the average fall of rain in the south west monsoon, seldom attains 40 inches, whilst at Mercara, it generally exceeds 100; if therefore, the difference be so great at the distance of 19 miles, it must of necessity be much greater at Cuddapah; besides, the elevated plateau of Mysore intervening, farther intercepts

the rain, and the little that reaches to the neighbourhood of Cuddapah, is interrupted by the surrounding hills. During this season, which comprehends from June to September, the mean temperature was observed in the year 1838, to be 83° 4″, the maximum 95°, and the minimum 72°.

From the above general description of the climate of Cuddapah, it may be inferred, that it cannot be otherwise than unfavorable to the European constitution, as well from the prevalence of malaria in the neighbourhood, the intense heat, unavoidable confinement within doors, the want of exercise, and often sleepless nights during a considerable portion of the year. Its effects therefore, sooner or later become visible, and during the years 1837 and 1838, in which the 28th Regiment N. I. was stationed at Cuddapah, every officer of the corps, suffered more or less from the effect of climate; and two were in consequence obliged to return to Europe.

Shortly before leaving Secunderabad for Cuddapah, the same corps suffered severely from epidemic fever, and agreeably to what has been often observed to result, the change from a good to an indifferent climate improved the health of the Regiment for sometime; but proofs of its unhealthiness soon became frequent, for when cholera or other epidemic diseases prevail in the country, Cuddapah always suffers severely.

Soil. The soil of the extensive plains to the west and north of the district, consists of a rich black cotton loam, but in the vicinity of the hills, and in the valley of Cuddapah, it is overlaid with an alluvial deposit, the debris of the neighbouring rocks, comminuted to an impalpable powder, rendering it light and sandy, and in some places it is intermixed with an adhesive reddish earth.

Geological remarks. The eastern and western ranges of mountains consist chiefly of gneiss, overlaid with sand stone, and syenite; the beds being variously contorted, and intersected with veins of green stone.

The principal rock in the southern ranges is granite, with

gneiss and mica slate, all more or less in a state of decomposition.

The soil on the whole, is generally very productive, when a sufficient quantity of rain falls, but Doopaud, the most northerly talook, bordering on the Kurnool and Guntoor districts, has been very much depopulated of late years, in consequence of a general failure of rain, causing emigration.

Nodulous lime stone, and potter's earth, are plentiful throughout the district, and a speices of coarse marble, of a blue colour, and which is easily cut, is abundant, and is used at Cuddapah for the flooring of houses.

A coarse kind of purple clay slate, is very common in Doopaud and the hills north of that talook, bordering on Paulnaud, and the Kistnah. In the valley of Cuddapah it is found in horizontal beds, several feet beneath the surface, in a soft state, but on exposure to the air it becomes hard, and wells are generally faced with it. Soda is found in the form of an efflorescent carbonate, in a red ferruginous soil in the valleys, as well as about Cuddapah; it is used instead of soap by the natives, and the *Dhobies* manufacture soap from it, by the addition of chunam and cocoanut oil, to the concentrated ley. The soft mass is placed in segments of cocoanut shells, and exposed to the sun, till it hardens into a cake. Nitrate of potash, and the chloride of soda, are also found in great abundance, both being intermixed with reddish soft earth, incrusting the surface. These salts, particularly the latter, which is most abundant, are extracted by lixiviation, and evaporation. Numerous pits for this purpose are seen excavated in several parts of the plains, surrounded with mounds of earth; the salt thus obtained is very impure, and scarcely fit for culinary purposes.

Boring experiments have of late years been made in various parts of India, principally with the view of forming artesian wells, but no trials have been made yet in the Cuddapah collectorate, with the view of discovering coal, although the formation, in many situations, presents geologically speaking

more favorable indications of the existence of this valuable mineral, than any other part of the Madras presidency. This for the most part is of sand stone, varying in its structure, from a quartz rock, to a conglomerate and loose grit, of various shades, from white to deep red, and some times beautifully variegated, as in the vicinity of Sedhout; it usually rests on lime stone of a deep blue colour, containing iron pyrites, and veined with calcarious spar.

The soil on the surface contains much calcarious and saline deposits, consisting of natron, and chloride of soda; copious springs of pure water, which possibly may have their source in subjacent coal beds, flow from both descriptions of rock. The Cuddapah sand stone resembles the carboniferous arenaceous rock of Cherra Poonja, on which a bed of coal is seen to rest, on an insulated summit, 300 feet above the level of the sea. The coal fields of Burdwar and Palamow, both repose on low hills of sand stone. In age it appears to assimilate more to the old red or carboniferous sand stone of England, than to the new red formation, to which it has been compared, and as far as has been hitherto discovered, is non-fossiliferous.

It is also remarkable as being the matrix of most of the diamonds, for which Golcondah has long been celebrated; may not the presence of this gem, which is the purest mineral carbon known, therefore, indicate the existence of carbon in another form?

From the above cursory remarks, it is not intended to draw the inference that the formation of coal over the whole surface of the globe was simultaneous, or that this mineral must necessarily exist in the Cuddapah formation, but by a plain statement of local geological facts, to draw attention and excite investigation to a subject of interest; science too, would undoubtedly reap some fruits from the knowledge obtained of the different strata penetrated, and even illustration might be thrown on the ingenious views of such men as M. Marago and Bischoff, regarding the internal temperature of our planet.

Water. Well water throughout the country, is strongly impregnated with the saline products of the soil, and as these become more concentrated by rapid evaporation in the hot weather, it then becomes quite unfit for domestic uses; Europeans are therefore obliged to procure drinking water, from a distance of from one to three miles from Cuddapah.

The natives generally make use of river or tank water; but though more free from saline impregnations, the latter in particular often holds in suspension a large proportion of earthy matter, and from being stagnant is moreover generally contaminated with various animal and vegetable matters in a state of decomposition.

The natives attribute many diseases to the quality of the water, and in this opinion they are neither altogether singular, nor perhaps far from the truth. Galen ascribes Elephantiasis, which Alpinus informs us, is endemic in Egypt, to the impure waters of the Nile; and Lucretius says "est elepas morbus qui propter flumina Nili gignitur, Ægyto in medio"; and Dr. Cleghorn states, that hard water has a tendency to produce diseases of the *spleen* in certain animals, especially sheep, which is the case he says, on the eastern side of the island of Minorca!—an opinion adopted by Dr. Paris, (article "aqua.") The latter also informs us, that pigeons refuse hard water after being accustomed to that which is soft; and snipe have been known to avoid those paddy fields and swamps, which were irrigated with water containing saline ingredients, to which cause, the well known scarcity of these birds in the district of Cuddapah, may be attributed.

Causes of Fever. With respect to Cuddapah, it is found that noxious exhalations, the existence of which are inferred from certain effects on the animal economy, are most prevalent from the end of June, to the end of January, because the extrinsic agents most influential in favouring the evolution of those emanations, in soils and situations capable of engendering them are *then* most active in *this* district, namely intense heat, acting on a wet surface. Hence, from February to the

end of May, malarious diseases, are less frequent, from the atmosphere being dry, and the whole country burned up.

The probable sources of Malaria, under the operation of heat and moisture, such as extensive and dense jungles, on and around the hills, muddy and slimy beds, of half filled tanks and wells, and marshy ground under wet cultivation, are numerous. The nature of the manure employed throughout the district, namely green boughs of trees, may also be enumerated as another source of disease, and turning up such ground, has been found in the West Indies to be a very dangerous operation; Cassan describes it as sometimes producing fevers which resemble an absolute plague, the labourers even dying on the spot, if they attempt to remain at night on the ground which they have broken up during the day. With these may also be classed the preparation of indigo; the neighbourhood of such manufactories being unpleasant in the extreme, from the offensive smell of vegetable matter undergoing decomposition, and its noxious influence is still further propagated, by its being used as manure.

The saline nature of the soil it is believed, also exerts an injurious influence on the nature of the poison, as it is well known, that estuaries particularly within the tropics, are generally productive of the worst forms of malarious fevers.

With reference to the diffusion of these emanations at Cuddapah, it appears certain, that its particular position with respect to the mountains in the vicinity, and the sloping plains on its west, by which it is placed in a bason, must have the effect of preventing its dissipation.

The south west wind also blows towards it, across a dreary plain, which is quite a marsh for several months.

Lastly the greater prevalence of malarious disease, from June to the end of September, is also attributable to sudden atmospherical vicissitudes; part of the nights being so close and oppressive, as often to compel both Europeans and natives, to quit their houses for the cooler atmosphere out side,

and which is succeeded perhaps in a short time, by a bleak cold wind, blowing from the hills to the south west saturated with moisture; which acting on an exhausted and relaxed frame, bedewed with perspiration, is extremely apt to occasion fever.

Vegetation which commences after the first rains in June, or after occasional showers, often becomes again burned up by returning drought, before the setting in of the N. E. monsoon. In the hills,however, where the rains are more constant, the surface becomes covered with rank coarse grass, part of which is set fire to in February, and part preserved for thatching houses.

After the first showers in June, the ground is ploughed preparatory to laying down both dry and wet grains. The manure used for the dry crops consists of ashes and sheep's dung, that of the oxen, owing to these animals being held sacred by hindoos, is reserved for fuel, and for plastering the walls and floors of houses, but the quantity of manure is every where insufficient. Between June and August, should the supply of water in the tanks be sufficient, the soil for wet cultivation, having been previously ploughed and harrowed once or twice, is manured, with the green boughs of trees, which are embedded in the soft earth and the fields then laid under water; after decomposition has begun the water is drawn off, the grain is sown, and the fields are again laid under water, which is occasionally renewed as it becomes dried by evaporation, until the crops are nearly ripe.

Of the principal vegetable productions, paddy and jonaloo, are sown from July to September, sudjaloo in June, and all others in September.

The extensive plains of black soil to the north-west, produce large crops of cotton, wheat and indigo. The talooks which chiefly supply rice are Cumbum, Chinnoor, and Camlapoor. In the other parts of the district dry grains, such as cholum, raggy, &c. are principally cultivated.

In the gardens about the town of Cuddapah, but principally in the Muddenpully talook, sugar cane, tobacco, turmeric and betel leaf are grown. At Muddenpully, probably the best and purest sugar candy to be found in the Madras provinces, is manufactured, a large quantity of which is exported. It has been sold at Bangalore as China sugar candy, to which it is equal, except in colour.

All the usual kitchen garden vegetables common to the country, are procurable, the gardens being watered from wells. The climate however is unfavorable for horticulture, as far as regards European vegetables which do not thrive, owing to the intense heat of the meridian sun, and want of rain.

Though wood is scarce in the vicinity, there are however many large mango, peepul, and tamarind trees to be seen, which, when the plains are covered with cultivation, give the face of the country a pleasing appearance.

Fruits. The fruits most abundant, are the mango, tamarind, plantain, water melons in great variety, and pumplemoses. In some gardens in Muddenpully the guava, lime, pomegranate, peach, apple, grape and citron are found, but may be considered as exotics.

Wild animals. Wild animals are not numerous, those met with are the jackal, fox, hare, antelope, hog, and wolf; the two first only, are found in the plains, in which no game, unless a few snipes, florikin and rock pigeons are seen, in the cool season; the others frequent the hills, together with a few red legged partridges, jungle, and spur fowl. Sometimes a stray tiger, or panther are heard of in the plains, but are soon destroyed by the inhabitants.

Minerals. Besides the mineral products already mentioned, iron is very abundant in the hills, but is not exported, sufficient for internal consumption merely, being smelted. Lead and copper are also found in some situations.

There are likewise diamond mines, about 7 miles from Cuddapah, between Chinnoor and a range of hills, on either side of the Pennar river. They consist merely of pits rudely excavated, and surrounded with heaps of stones. The diamonds are said to be found in alluvial soil, and in rocks of the latest formation; the mines have not been worked of late, and from being known for several centuries past, it is probable they are exhausted.

Roads. The principal roads are, one to Madras being the continuation of the Bellary road, it is the best in the district, and is provided with good bungalows for travellers, at regular stages. It runs first east and by south to Wontimettah, and crosses the Chegar river, on the left bank of which at Nundaloor, is the third bungalow from Cuddapah.

The Bellary road was originally made when Sir Thomas Munro was collector of the Balaghaut districts, but it is much cut up, and in need of repair. It is planted on both sides with large trees, principally the peepul and neem, which afford a pleasant shade; but, as it runs chiefly through black cotton soil, it is nearly impassable in heavy rains, and in the vicinity of the cantonment, is a bed of fine sand several feet in depth; on this road there are also good bungalows at regular stages.

The Hyderabad road, via the Moorcondah ghaut, scarcely deserves the name, it runs nearly due north from the cantonment.

The Nellore road takes a due east direction, and is also very rocky and stony.

The Bangalore road proceeding south-west from Cuddapah, is nearly impassable for carts, in several parts it runs between narrow rocky defiles, over hilly and often mountainous country.

There are two roads connecting the cantonment and town of Cuddapah, first, one passing through the centre of the re-

gimental lines, which is the most direct, and crosses the bridge over the Cuddapah river, thence passing through the town and fort to the civilians' lines; the other, which is very narrow, runs along the left of the regimental lines, and turning to the south is intersected by the deep sandy bed of the Boogawanka, and finally winding to the east, is again intersected by the still broader bed of the Cuddapah river, whence it proceeds to the civilians' lines, leaving the town on the north.

Endemic and Epidemic diseases.

Malarious fevers are usually of the quotidian type. The exciting cause of which in most instances, has been exposure to atmospherical vicissitudes; in ordinary cases it yields to simple treatment, such as emetics, mild aperients and bark, or sulphate of quinine.

Dysentery.

This disease, as it occurs in the valley of Cuddapah, is frequently either a sequel of fever, or complicated with it, but in cases to be noticed hereafter, it appears also to be caused by a malarious and very humid atmosphere; and this form of disease is seen most frequently in the hilly districts.

In natives, dysenteric affections are removed by means of a few leeches, and a blister to the abdomen, mild aperients and the use of the sulphate of quinine, with vegetable and mineral astringents, and opium.

In two cases which occurred amongst European officers, in 1836 and 37, one was of a mild form, having readily yielded to the use of the blue pill and ipecacuanha, with an occasional dose of castor oil; but the other, which was complicated with disease of the liver and lungs, ultimately proved fatal.

Hypertrophy of the spleen, is, like dysentery, the result of malarious fever, especially if the fever proves obstinate; the intermittents of the hilly districts however, appear to have a greater tendency to produce splenick affections, than those occurring in other situations, where fevers are not less frequent; occasioned it would seem by circumstances not as yet well understood; and these engorgements occur, in cases

where the paroxysms of fever have been comparatively slight. "In moist countries," says Dr. Bigsby, "whether warm or temperate, diseases of the spleen are endemic, as in Italy, Holland, South America and some parts of India, in fact where-ever malaria exists;" accordingly in the valley of Cuddapah, where fever is very general, the disease in question is but rarely seen, whilst it is remarkably common in the hilly or mountainous talooks of Gurrumcondah and Muddenpully, where the climate is more moist.

The most approved treatment consists in the employment of a combination of aperients, with iron and tonics, which had been laid aside in Great Britain in favour of mercury, until recently. The good effects of mercury as a deobstruent, in chronic diseases of the spleen, are of doubtful efficacy, more particularly when a cachectic state of the system is present. In order to relieve the engorgement of the viscus, local bleeding with leeches, when the strength of the system admits of their use, and subsequently counter irritation by means of blisters, as well as the frequent use of warm purgatives and bitters, is the most approved mode of treatment. When the pain, tension, and weight have been relieved by such means, iron, quinine, and iodine, are then found to produce the best effects.

Anasarca. Anasarca is very common in the districts in which affections of the spleen are prevalent, and is almost invariably the result of organic visceral disease. The most efficacious mode of treatment is found to be the use of a combination of aperients, diuretics and tonics, but above all things, change of climate is most essential.

Hepatitis. Hepatitis is very rarely seen amongst natives, to whose constitutions the climate in this respect does not appear obnoxious. Two cases occurred in 1836 and 37, amongst the European officers of the regiment at Cuddapah, which appeared to be occasioned by the effect of heat.

Health of European children. The climate is found to be unfavorable to European children, in whom the gastro-intestinal functions, be-

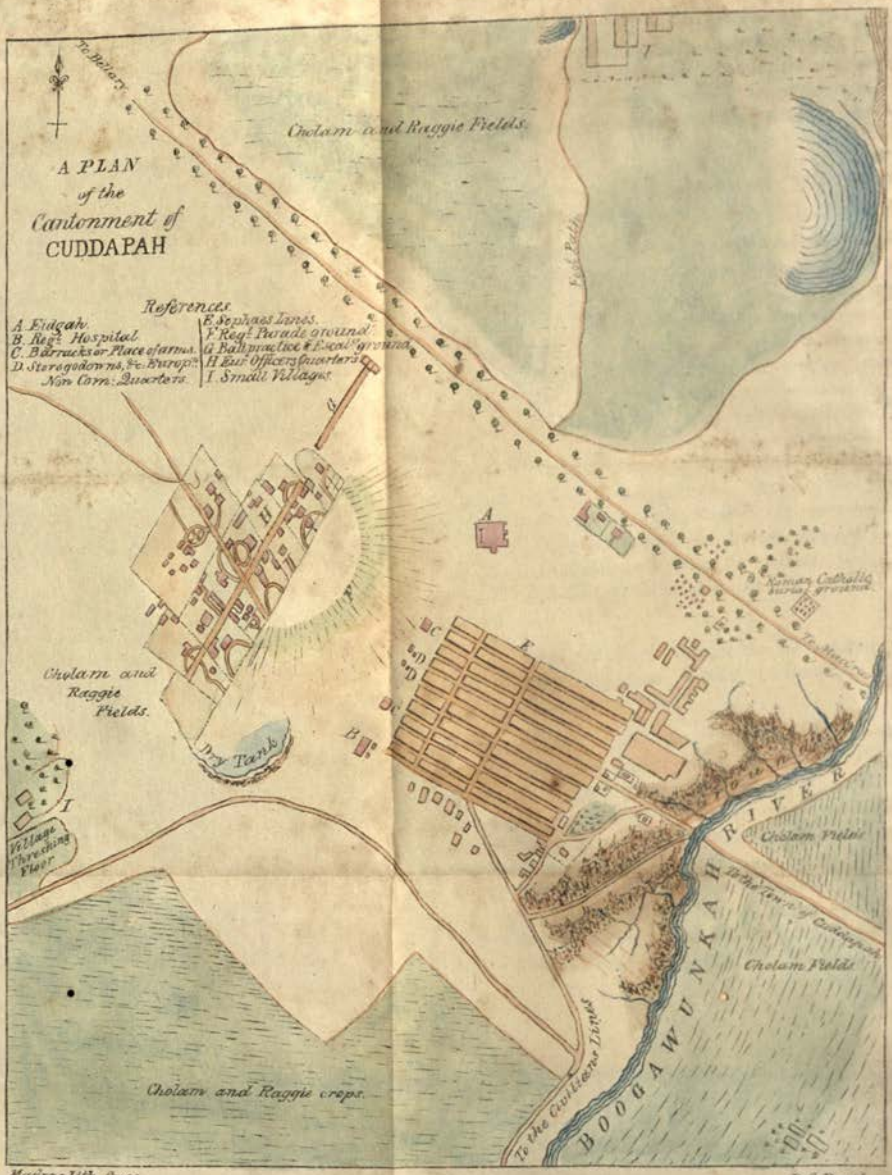
come torpid, and otherwise disordered; irritation supervenes and is followed by dysentery, tabes mesenterica, and general atrophy. The only effectual remedy in such cases, is found to be an immediate removal of the patient to the sea coast.

Abortion &c. Abortion and menorrhagia, are very common both in European and native females.

Rheumatism. Rheumatism is very prevalent in natives, the exciting cause, of which in most instances, can be traced to exposure to atmospherical vicissitudes. It is generally seen in the chronic form, and unattended with constitutional disturbance; though in many cases, accessions of local inflammation eventually induce disorganization of the tissues of the joints, the ligaments becoming thickened, with depositions in the bursæ. But agreeably to Cullen, another form of the disease is seen, in which there is "*tumor plerumque nullus*," acute local pain being the only complaint. These cases however are more neuralgic than rheumatic, for they soon yield to anodyne liniments, and a few doses of the carbonate of iron; whereas, the other form of the disease, requires local bleedings and vesications, bark with the mineral acids, or decoction of sarsaparilla, guaiacum and mercurial alteratives, in the treatment.

Psora. Psora is very prevalent in the hot season, the result of the combined influence of want of cleanliness, and the saline impurities of the water.

Cholera. Cholera appeared in Cuddapah, as an epidemic, in the middle of October 1837, simultaneously with the arrival of a number of pilgrims from Triputty, where it had been raging to a great extent; but though there was a daily communication between the town and the regimental lines, the disease did not extend to the latter, until the 1st. November, when a heavy fall of rain from the north-east occurred. It did not however prevail extensively in either place, but was both rapid in its course, and fatal in its result. Fortunately very few cases occurred amongst the sepoys of the regi-



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ment. Cholera again made its appearance in 1839, and 1841 and was more fatal.

In Mr. W. Scot's report of this disease, cholera is recorded as having made its first appearance at Cuddapah on the 9th December 1818, eight days later than at Triputty, from whence it appears at that time also to have extended to Cuddapah.

Barracks. The barracks, are two substantially built detached buildings, see sketch of cantonment, lying parallel with each other, built of brick and chunam, and tiled. The soil on which they stand is sandy, and the site being a gentle declivity, they are well drained; and, lying north and south, are open to the periodical winds.

The building on the right of the lines, is 60 feet long, by 16 feet broad within the walls, which are 11 feet high; it has thirteen folding doors, and seven windows.

That immediately on the right of the hospital, is also of the same dimensions, but has only ten folding doors, and two windows.

Serjeant's quarters. The serjeants' quarters lie between the right wing of the barrack, and the store room. They consist of two rooms, each 14 feet by 17, and 10 feet high, with two folding doors, and four widows.

There are two solitary cells, each eight feet square, and 16 feet in height, with two doors, and two windows, situated on the left of the hospital.

Hospital. The hospital is on the extreme left; and is built of like substantial materials, but its site is much lower than that of the barracks, and the soil near it is impregnated with salt-petre; the floor is not sufficiently elevated and water lodges around during heavy rains. The hospital lies parallel with the other public buildings, and having ventilators in the roof, is always well aired. It is supplied with

water from the river in rear of the lines, except in the hot season, when it is procured from a large well, but as in the other wells in the cantonment, the water is brackish.

The dimensions of the hospital are, length 88½, breadth 19½, and height of walls 11 feet; it has two folding doors, one on either side, and 17 windows. The native sick prefer lying on mats placed on the ground, to cots, and but for the low situation of the hospital, cots in so dry a climate would be unnecessary. A surgery is divided off one end, which is 8½, by 19½ feet.

The ground to the left, for some distance, is uncultivated, but beyond that, fields of raggy and cholum extend to the south-west, and in front and between it and the officers' lines, is a large dry tank which should be filled up, being a receptacle for filth, no disease has however been attributed to the locality of the hospital.

The following table exhibits the amount of diseases and mortality, *which have occurred* amongst the native Troops *at this station*, during a period of nine years and six months; from 1829 to 1841. It includes the returns of those regiments only who have occupied the station during a period of six or twelve consecutive months.

No. 14.—*Table exhibiting the number of Admissions and Deaths, amongst the native Troops stationed at Cuddapah, during a period of nine years and six months, from* 1829 *to* 1841.

Aggregate Strength. 8483. CLASSES.	DISEASES.	Admissions.	Deaths.	Total admissions from each class.	Total deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers	Febris ephemera	1661	1	2948	20	34 ·751	0 ·678
	„ intermit quot.	1017	11				
	„ tertiana	98	1				
	„ remittens	138	2				
	„ com : cont.	34	5				
	Cholera	136	62	136	62	1 ·603	45 ·589
Diseases of the abdominal viscera	Diarrhœa	69	1	269	6	3 ·171	2 ·230
	Dysenteria acuta et chronica.	96	0				
	Obstipatio	6	0				
	Colica	12	0				
	Dyspepsia	67	3				
	Hœmorrhois	6	1				
	Icterus	5	1				
	Splenitis	3	0				
	Hepatitis	5	0				
Diseases of the Lungs	Catarrhus	20	0	73	15	0 ·860	20 ·547
	Asthma	16	3				
	Phthisis pulmonalis	3	1				
	Pneumonia	26	8				
	Hydrothorax	2	2				
	Dyspnœa	6	1				
Diseases of the Brain	Apoplexia	4	3	35	4	0 ·412	11 ·428
	Paralysis	6	0				
	Amentia	8	1				
	Mania	16	0				
	Delirium Tremens	1	0				
Eruptive fevers	Variola	10	2	68	2	0 ·801	2 ·941
	Varicella	53	0				
	Rubeola	4	0				
	Erysipelas	1	0				
Dropsies	Anasarca	24	3	35	5	0 ·412	14 ·285
	Ascites	11	2				
	Rheumatismus	476	3	476	3	5 ·611	0 ·630
Venereal affections	Syphilis primitiva	222	0	391	0	4 ·609	0 ·000
	„ consecutiva	20	0				
	Gonorrhœa	86	0				
	Hernia humoralis	59	0				
	Strictura urethræ	4	0				
Specific diseases	Atrophia	12	2	81	4	0 .954	4 ·938
	Lepra	4	0				
	Dracunculus	48	0				
	Scrophula	12	1				
	Beriberi	5	1				
Diseases of the Eye	Morbi oculorum	107	0	107	0	1 ·261	0 ·000
Do. Skin.	„ cutis	187	1	187	1	2 ·204	0 ·000
	Other diseases	1124	1	*1124	1	13 ·250	0 ·089
	Total	5930	123	5830	123	69 ·904	2 ·071

† 14 cases of Cholera with 8 deaths in 1839.
87 do. do. 35 do in 1841.

Nore.—Per centage of deaths to strength 1·500.

* Of this number were Phlogosis 460 and one death, and 311 cases of Ulcus.

Monthly abstract of a daily atmospherical Register kept at Cuddapah, from 1*st January to* 31*st December* 1836.

Months.	Mean height of the Thermometer.	Extremes of Thermometer.		General Remarks.
		Max.	Min.	
January.....	75° 5	86° 0	65	During the month the wind blew uniformly and steadily from the north east; some dew deposited, occasional fogs in the morning, the weather calm and pleasant.
February..	77° 0	88° 0	66° 0	Wind from west, and light to the middle of the month, when it became variable, and strong, latterly it veered to east and by north, with white clouds.
March.	81° 0	93° 0	69° 0	East and north east winds prevailed, strong, and hot occasionally, with some clouds, rain on the 25th. The thermometer ranged under a thermantidote, 84° to 86°.
April..	86° 0	96° 0	76o 0	Wind chiefly east but variable, nights close and hot, when the thermometer stood at 90° with open doors, some rain on 25th with thunder.
May.....	88° 5	98° 0	79° 0	Wind still variable until the 3rd, when the regular hot winds set in from the west, nights hot and close.
June.....	87° 0	95° 3	79 1	Until the 10th the wind continued to be variable, when the south west monsoon set in, with much thunder and rain.
July.....	83° 5	94° 0	73° 0	Wind continued south west, nights and days close with occasional rain, chiefly at nights. Fever prevailed about the latter end of the month.
August....	82° 2	92° 5	72° 0	Weather cool and cloudy, a heavy fall of rain on the 11th, and from the 20th, heavy and general rain—wind westerly and light.
September	81° 0	90° 0	72° 0	Wind variable generally from the west, no rain in the early part of the month, but from the 15th much rain fell, chefly during night with thunder.
October.....	75° 5	89° 0	70° 0	No rain in the month, wind north east, nights cool, as also mornings evaporation rapid, clear and some clouds, and on the 31st a perfect hurricane all night, and torrents of rain, many trees blown down.
November.....	77° 0	85° 0	67° 0	Weather very clear and pleasant within doors nights cool, much rain on the night of the 4th, a few showers afterwards during the month.
December.....	81° 0	80° 0	65° 0	Weather calm and cool, no rain, some dew.

Monthly abstract of a daily atmospherical Register kept at Cuddapah, from 1st January to 31st December 1837.

Months.	Mean height of the Thermometer.	Extremes of Thermometer. Max.	Min.	General Remarks.
January.....	85° 5	86° 0	65	Weather nearly the same as last year.
February..	88° 0	89° 0	66° 0	Same as last year.
March.	87° 0	94° 0	69° 0	Do. do. do.
April..	83° 5	96° 0	75° 0	As last year.
May.....	88° 0	98° 0	78° 0	As last year.
June.....	87° 0	95° 0	79° 0	As last year, but nights intensely hot and close until the 18th, when a heavy fall of rain occurred from the south west, having been preceded by very strong wind sweeping along clouds of dust and sand, from the south west.
July.....	83° 5	94° 0	73° 0	Weather the same as last year, but hot and close with occasional showers.
August....	85° 0	98° 0	72° 0	Up to the 10th nights intensely close, but days rather pleasant—heavy fall of rain with much thunder, on the 9th and 10th, lightning and drizzling rain, with little intermission from the 14th to 20th.
September.	82° 0	92° 0	72° 0	Wind north east. Intensely close both day and night.
October.....	84° 5	89° 0	70° 0	Continued to be close at nights until the 22nd, when some slight rain fell—wind south west and cloudy up to the 27th, when a heavy rain fell at night, and cooled the weather, cholera prevailed at Cuddapah on the 4th.
November..	75° 5	84° 0	67° 0	Rain very heavy up to the middle of the month, which has not occurred for upwards of thirty years, probably about 30 inches fell, during which period cholera prevailed at Cuddapah and in the neighbouring villages, and to a less extent in the regimental lines.
December.... ..	72° 5	80° 0	65° 0	Weather cool and calm, nearly the same as last year.

Jail. The jail stands nearly in the centre of the old fort; the site being slightly elevated and considered to be salubrious. It was erected in 1813, and consists of several buildings in separate and spacious enclosures, for the various classes of prisoners, viz. male and female convicts, prisoners waiting for trial, civil debtors, and the hospital; the whole being surrounded by a wall, at some distance, twelve feet high.

The cells are 48 in number, and of various sizes, the average dimensions being about 17½ by 7 feet; they are built *dos a dos*, and are low and terraced, with sloping tiled fronts, or verandahs; there is no wall between the interior terraced portion, and that which is tiled, and the latter is open, being strongly barred with wood. Many of the cells are on a level with the surrounding ground, the sewers however are well arranged, and the drainage is good, and all the cells are kept perfectly clean. The supply of water is abundant and good. The whole building is calculated to contain upwards of 600 prisoners.

For a description of the diet, clothing, labour &c. see statement at the end of the report.

The hospital which can accomodate 50 patients is a large building within the precincts of the jail, and is supposed to have been, in former times, a part of a khiledars residence. It is open in front, being only protected by a bamboo frame work, which is so contrived as to be easily lifted up or let down. The usual offices, and a place for the guard are attached, and the building is surrounded by a high wall.

In the following tables are shewn the nature of the diseases and amount of mortality, which have occurred amongst the inmates, during a period of ten years, from 1829 to 1839; they also exhibit the diseases classified, and point out the per centage of sick to strength, and of deaths to sick treated.

JAIL OF CUDDAPAH.

No. 15.—*Table exhibiting the number of Admissions and Deaths of the Convicted Prisoners, from each class of Disease for* 10 *years, from* 1829 *to* 1839, *exclusive of* 1831.

CLASSES.	DISEASES.	From 1829 to 1839, exclusive of 1831. Aggregate strength 3,905. 1st Half. Ad.	1st Half. Dd.	2d Half. Ad.	2d Half. Dd.	Admissions and deaths from each class of disease. 1st Half. Ad.	1st Half. Dd.	2d Half. Ad.	2d Half. Dd.	Total admissions from each class.	Total deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick treated.
Fevers	Febrisephemera	116	4	83	4	399	43	429	41	828	84	21 ·203	10 ·147
	„ intermit quot.	254	27	305	29								
	„ remittens. ..	29	12	38	7								
	„ com : cont...	0	0	3	1								
	Cholera.....	81	28	122	66	81	28	122	66	203	94	5 ·198	46 ·305
Diseases of the abdominal viscera.....	Diarrhœa.....	61	23	142	50	132	38	212	70	344	108	8 ·809	31 ·395
	Dysenteria acuta et chronica..	43	14	60	19								
	Colica.....	25	0	9	1								
	Dyspepsia.....	3	1	0	0								
	Hœmorrhois....	0	0	0	0								
	Hepatitis.....	0	0	1	0								
Diseases of the lungs	Catarrhus.....	10	4	5	2	12	5	13	6	25	11	0 ·640	44 ·000
	Asthma.....	1	0	1	0								
	Phthisis pulmonalis.....	1	1	2	1								
	Pneumonia.....	0	0	4	2								
	Dyspnœa	0	0	1	1								
Diseases of the brain.	Apoplexia.....	1	1	2	1	8	2	6	1	14	3	0 ·358	21 ·428
	Epilepsia.....	4	0	0	0								
	Paralysis.....	1	0	1	0								
	Amentia.....	0	0	0	0								
	Mania.....	2	1	3	0								
	Delirium Tremens.....	0	0	0	0								
Eruptive fevers.....	Variola.....	40	13	16	1	71	13	61	1	87	14	2 ·227	16 ·091
	Varicellà.....	31	0	0	0								
Dropsies....	Anasarca.....	39	27	41	30	41	27	42	30	83	57	2 ·125	68 ·674
	Ascites.....	2	0	1	0								
Rheumatic affections.	Rheumat. acutus et chronicus	68	3	89	8	68	3	89	8	157	11	4 ·020	7 ·006
Venereal affections..	Syphilis primitiva.....	3	0	3	0	6	0	6	0	12	0	0 ·307	0 ·000
	„ consecutiva.	1	0	2	0								
	Hernia humoralis.....	2	0	0	0								
	Strictura urethræ....	0	0	1	0								
Specific diseases.....	Lepra.....	1	0	0	0	96	9	55	4	151	13	3 ·866	8 ·609
	Dracuneufus,...	72	0	50	1								
	Atrophia.	0	0	1	0								
	Scrophula.....	0	0	1	0								
	Beriberi.....	23	9	3	3								
	Morbi oculorum	40	1	18	0	40	1	18	0	58	1	1 ·485	1 ·724
	„ cutis.....	60	0	75	0	60	0	75	0	135	0	3 ·457	0 ·000
	Other diseases..	654	6	851	11	654	6	851	11	*1505	17	38 ·540	1 ·129
	Total..	1668	175	1934	238	1668	175	1934	238	3602	413	92 ·240	11 ·465

* Of this number were Phlogosis 297 with 1 death, Ulcus 685 with 10 deaths, and 415 admissions from punitus which seldom exceeds two dozen lashes.

JAIL OF CUDDAPAH.

No. 16.—*Table exhibiting the Number of Admissions and Deaths of the Prisoners under Trial, from each class of Disease, for* 10 *years, from* 1829 *to* 1839, *exclusive of* 1831.

CLASSES.	DISEASES.	From 1829 to 1839 exclusive of 1831. Aggregate strength 2523. 1st Half. Ad.	1st Half. Dd.	2d. Half. Ad.	2d. Half. Dd.	Admissions and deaths from each class of disease. 1st Half. Ad.	1st Half. Dd.	2d. Half. Ad.	2d. Half. Dd.	Total admissions from each class.	Total deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers	Febrisephemera	46	0	29	5	100	6	106	33	206	39	8 ·164	18 ·932
	,, intermit quot.	48	4	53	14								
	,, remittens	6	2	23	13								
	,, com: cont.	0	0	1	1								
Cholera		40	16	54	31	40	16	54	31	94	47	3 ·725	50 ·000
Diseases of the abdominal viscera	Diarrhœa	18	1	60	22	60	7	126	39	189	46	7 ·372	24 ·731
	Dysenteria acuta et chronica	34	5	62	17								
	Colica	6	1	3	0								
	Dyspepsia	2	0	0	0								
	Icterus	0	0	1	0								
Diseases of the lungs	Catarrhus	0	0	1	1	1	0	7	6	8	6	0 ·317	75 ·000
	Asthma	0	0	1	0								
	Pneumonia	1	0	5	5								
Diseases of the brain	Epilepsia	1	0	1	0	9	1	5	1	14	2	0 ·554	14 ·285
	Paralysis	2	1	0	0								
	Amentia	3	0	1	0								
	Mania	3	0	3	1								
Eruptive fevers	Variola	2	0	7	2	17	1	9	2	26	3	1 ·030	11 ·538
	Varicella	14	0	1	0								
	Rubeola	1	1	0	0								
	Erysipelas	0	0	1	0								
Dropsies	Anasarca	6	5	12	5	6	5	12	5	18	10	0 ·713	55 ·555
	Ascites	0	0	0	0								
Rheumatic affections	Rheumat. acutus et chronicus	7	1	10	0	7	1	10	0	17	1	0 ·673	5 ·882
Venereal affections	Syphilis primitiva	3	0	7	0	4	0	12	0	16	0	0 ·634	0 ·000
	,, consecutiva	1	0	0	0								
	Gonorrhœa	0	0	1	0								
	Hernia humoralis	0	0	2	0								
	Strictura urethræ	0	0	2	0								
Specific diseases	Dracunculus	11	0	12	1	13	1	13	1	26	2	1 ·030	7 ·692
	Scrophula	0	0	1	0								
	Beriberi	2	1	0	0								
Morbi oculorum		2	0	5	0	2	0	5	0	7	0	0 ·277	0 ·000
,, Cutis		44	0	38	0	44	0	38	0	82	0	3 ·250	0 ·000
Other diseases		79	4	96	1	79	4	96	1	*175	5	6 ·936	2 ·857
Total		382	42	493	119	382	42	493	119	875	161	34 ·680	18 ·400

* Of this number were Phlogosis 30, Ulcus 82 with 3 deaths.

Remarks on the preceding tables of diseases.

Amongst the convicts the strength annually has amounted to 390, and the admissions have been 360, or 92·240 per cent; the annual number of deaths during the same period has been 41, or 10·576 per cent on the strength; the total admissions being 3602, deaths 413, from an aggregate strength of 3905.

The most numerous admissions have been from *fevers, cholera, bowel complaints, rheumatism, phlegmon, ulcers* and *punitus* in the class of other diseases; and the greatest mortality has resulted from *fevers, cholera, diarrhœa and dysentery, anasarca, rheumatism and beriberi.*

Amongst the prisoners waiting for trial, the admissions into hospital have principally been from *fevers, cholera, and bowel complaints;* and the mortality has been occasioned by the same diseases and *anasarca.* The total admissions have amounted to 875, with 161 deaths from an aggregate strength of 2523; the per centage of sick to strength being 34·680, and of deaths to strength 4·569.

In the following table No. 17, which has been drawn up similarly to that for the Bellary Jail, the annual admissions and deaths from the same diseases are exhibited, viz. fever, cholera, diarrhœa, dysentery, anasarca, rheumatism, atrophia, and beriberi. Here, as in the table alluded to, the total sick treated and mortality are also shewn, for the purpose of contrasting the proportion of deaths produced by these diseases; being 507 out of 574, or fully 7-8ths of the whole mortality.

Table No. 17, Jail of Cuddapah.		1829.		1830.		1832.		1833.		1834.		1835.		1836.		1837.		1838.		1839.		Total.	
		Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Convicts.	Fever	93	1	164	1	60	9	85	15	89	21	115	24	38	3	62	6	103	3	22	1	828	84
	Cholera	1	0	0	0	45	28	133	53	9	6	0	0	0	0	3	2	4	3	8	2	203	94
	Diarrhœa	7	1	16	0	15	1	93	42	21	16	14	5	4	2	9	4	4	1	17	1	203	73
	Dysentery	7	0	12	1	17	3	51	23	4	2	4	2	0	0	1	1	1	0	6	1	103	33
	Anasarca	1	0	0	0	6	5	31	19	28	26	3	1	3	3	8	3	0	0	0	0	80	57
	Rheumatism	26	1	31	0	21	1	27	2	12	1	4	0	2	0	4	3	17	2	10	1	157	11
	Atrophia	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Beriberi	0	0	0	0	0	0	0	0	3	3	23	9	0	0	0	0	0	0	0	0	26	12
	Admissions and deaths from these diseases	135	3	224	2	167	47	420	154	169	75	163	41	48	8	87	19	129	9	63	6	1601	364
	Total admissions and deaths	387	4	652	6	385	50	696	165	342	93	277	43	188	12	243	21	241	10	191	8	3602	413
	Strength each year	310		375		463		553		668		512		309		335		169		211		3905	
under Trial.	Fever	11	0	19	1	27	4	56	25	0	0	10	0	9	2	8	1	42	2	24	4	206	39
	Cholera	0	0	0	0	7	3	77	38	0	0	0	0	0	0	0	0	0	0	10	6	94	47
	Diarrhœa	1	0	2	0	11	2	47	18	0	0	2	1	1	0	0	0	2	2	12	0	78	23
	Dysentery	5	0	5	0	16	2	64	20	0	0	0	0	0	0	0	0	1	0	5	0	96	22
	Anasarca	0	0	0	0	4	2	8	4	0	1	1	1	0	0	1	1	2	1	2	0	18	10
	Rheumatism	2	1	0	0	7	0	3	0	0	0	0	0	0	0	0	0	2	0	3	0	17	1
	Atrophia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Beriberi	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	2	1
	Admissions and deaths from these diseases	19	1	26	1	72	13	255	105	0	1	15	3	10	2	9	2	49	5	56	10	511	143
	Total admissions and deaths	56	2	67	1	126	14	303	116	0	2	33	3	31	2	36	2	91	15	132	14	875	161
	Strength each year	209		209		268		536		441		182		135		109		163		271		2523	
Admissions and deaths amongst both classes of prisoners		443	6	719	7	511	64	999	281	342	95	310	46	219	14	279	23	332	15	323	22	4477	574
Total Strength each year		519		584		731		1089		1109		694		444		444		332		482		6428	
Per centage of deaths to strength		1	·516	1	·198	8	·755	25	·894	8	·566	6	·628	3	·153	5	·180	4	·518	4	·578	8	·929
Per centage of sick to strength		85	·356	123	·116	69	·904	91	·735	30	·838	44	·668	49	·324	62	·837	100	·000	67	·012	69	·648
Per centage of deaths to																						12	·821

Thus it will be seen that nearly one half of all the mortality amongst both classes of prisoners occurred in 1833, the year of famine, which was severely felt over the whole of this Collectorate. Almost all the prisoners admitted into the jail in that year, were extremely enfeebled and emaciated from *starvation*, and the mortality was confined almost exclusively to them. The following extract from the medical officers report gives a melancholy account of their condition.

"One hundred and two cases of fever were admitted, 29 of which were of the remittent and 73 of the intermittent types: sixteen of the former and eighteen of the latter terminated fatally. Those patients who died of the remittent form were all either old and attenuated or afflicted with cough; none of them survived a week, few lived even to the third day. Of those who died of the intermittent type, eight were between 50 and 60 years of age, two had but recently recovered from cholera, one had dropsy, and seven were harassed with cough; all of them sunk finally under diarrhœa."

"Sixty six cases of dysentery were admitted, and 28 proved fatal; none of these cases were attended with fever, and but few of the patients complained of griping pain or tenderness of abdomen; the tenesmus however was always distressing, especially towards the latter stage of the disease, when the dejections which consisted of blood and mucus, became more scanty and frequent; its course to a fatal termination was peculiarly rapid in very many of the cases."

"One hundred and fourteen cases of diarrhœa were received into the hospital, of which number fifty four proved fatal; many died within the first week; all of these patients were exceedingly emaciated, and had been literally starving before they came into the jail. The alvine discharges were not frequent, nor did they ever assume the dysenteric character, although after death the colon was often found in an ulcerated state; in many instances cough with pain of chest were complained of, and the lungs in such cases were found extensively diseased and tuberculated."

As it may be interesting to shew in a tabular form the relative healthiness of this and the Bellary jail the following table has been framed, in which are exhibited the admissions and deaths from the most important diseases, the total sick and mortality, the number of prisoners and the per centage of deaths to strength each year. The returns for 1831, for both jails have been lost ; but it has been ascertained, that the number of deaths at Bellary, in that year was 30 (one from cholera) from an aggregate strength of 681, and at Cuddapah they amounted to 80, (thirty eight of which were from cholera,) from an aggregate strength of 613. These figures being added to the respective sums in the last column of the table, give 6·299 as the average per centage of deaths to strength at Bellary, and 9·287 at Cuddapah.

The two stations differ widely from each other in many respects, viz. geographical position, elevation above the level of the sea, nature of the adjoining country and mode of cultivation followed in the immediate neighbourhood, as already noticed ; and the marked prevalence of fever and its sequelæ especially dropsies from visceral disease in the Cuddapah jail can be thus satisfactorily explained. The frequent severe visitations of cholera in this jail cannot fail to attract observation, whilst with the exception of the outbreak of this disease in 1837, the jail at Bellary may be said to have been free from it during the entire period, from 1829 to 1839 inclusive.

Another disease, the prevalence of which in the Bellary jail in 1833 and at Cuddapah in 1825 requires notice, viz. *beri-beri ;* its appearance in either jail is not easily accounted for. The extract however from the medical officer's report page 26, dated December 1832, bears upon the subject and partly explains it, the same remarks apply to many of the cases which occurred in 1833, and also to those in the Cuddapah jail in 1835 ; nor can it be overlooked that in this jail only two cases were entered under the head *Anasarca* in 1833, and in 1835, in that of Cuddapah, only four appear under the same head. The

Table No. 18.—Jail of Bellary and Cuddapah contrasted.

		1829.		1830.		1832.		1833.		1834.		1835.		1836.		1837.		1838.		1839.		Total.	
		Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Jail of Bellary.	Fever	40	1	92	6	109	9	55	14	71	8	80	10	63	8	25	7	14	3	13	2	562	68
	Cholera	0	0	0	0	0	0	5	4	0	0	0	0	0	0	28	22	0	0	1	1	34	27
	Diarrhœa	20	1	10	3	26	8	17	9	54	34	9	4	7	2	10	5	7	4	5	3	165	73
	Dysentery	9	0	19	3	70	15	72	19	52	17	27	12	11	7	7	1	7	1	20	6	294	81
	Anasarca	4	2	2	1	9	8	2	2	0	0	6	2	1	0	3	1	0	0	1	0	28	16
	Rheumatism	14	0	13	1	23	3	23	5	31	9	28	2	11	0	4	0	12	1	14	0	173	21
	Atrophia	0	0	0	0	0	0	0	0	5	2	54	20	14	10	0	1	1	1	2	2	76	36
	Beriberi	0	0	0	0	1	0	89	44	9	7	0	0	0	0	0	0	0	0	0	0	99	51
	Admissions and deaths from these diseases	87	4	136	14	138	43	263	87	222	77	204	50	107	27	77	37	41	10	55	14	1430	373
	Total admissions and deaths	243	5	373	16	404	52	502	108	625	98	512	61	266	33	126	42	113	12	173	20	3337	447
	Total Strength each year	420		535		687		948		1279		914		678		554		317		539		6901	
	Per centage of deaths to strength	1	·190	2	·990	7	·569	11	·392	7	·662	6	·673	4	·867	7	·581	3	·458	3	·710	6	477
Jail of Cuddapah.	Fever	104	1	183	2	87	13	141	40	89	21	125	24	48	5	70	7	145	5	46	5	1034	123
	Cholera	1	0	0	0	52	31	210	91	9	6	0	0	0	0	3	2	4	3	18	8	297	141
	Diarrhœa	8	1	18	0	26	3	140	60	24	16	16	6	5	2	9	4	6	3	29	1	281	96
	Dysentery	12	0	17	1	33	5	115	43	4	2	4	2	0	0	1	1	2	0	11	1	199	55
	Anasarca	1	0	0	0	10	7	39	23	28	27	4	2	3	3	9	4	2	1	2	0	98	67
	Rheumatism	28	2	31	0	31	1	30	2	12	1	4	0	2	0	4	3	19	2	13	1	174	12
	Atrophia	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Beriberi	0	0	0	0	0	0	0	0	3	3	25	10	0	0	0	0	0	0	0	0	28	13
	Admissions and deaths from these diseases	154	4	250	3	239	60	675	259	169	76	178	44	58	10	96	21	178	14	119	16	2112	507
	Total admissions and deaths	443	6	719	7	511	64	999	281	342	95	310	46	219	14	279	23	332	15	323	22	4477	574
	Total Strength each year	519		584		731		1089		1109		694		444		444		332		482		6428	
	Per centage of deaths to strength	1	·516	1	·198	8	·755	25	·894	8	·566	6	·628	3	·153	5	·180	4	·518	4	·568	8	·929

debilitated state in which most of the prisoners were brought into jail in 1833, from actual starvation, predisposed to or induced œdema, which in some cases, was attended with partial paralysis, and in others, from long continued and great exposure, with rheumatic pains likewise.

KURNOOL.

The small principality, or *jagheer* of Kurnool, or Kurnoola, as it is called by the natives, containing about 1056 square miles in extent, was subdued by, and came under the British power in the year 1839, in consequence of the treasonable designs of the late Nabob.

Situation and general description.

The chief town of the district is of the same name, and is situated in 15° 48′ north latitude, and 72° east longitude, upon an angle of land formed by the junction of the rivers Henderry and Toombuddra; its elevation above the level of the sea is 900 feet. It is distant from Bellary 95 miles, from Hyderabad 128, and from Madras 300, the roads to which places are passable for wheeled carriages at all times.

In reference to the surrounding country, Kurnool is placed in a hollow, the view to the eastward being terminated by a low range of hills about five miles distant: on the west the ground gently rises for about a mile and a half, when the view abruptly terminates: on the north it also rises gently from the Toombuddra, to about the same distance; and on the south the view is bounded by a wedge shaped hill, about four miles distant. From the base of this hill the country slopes gently to the Henderry and Toombuddra; the general aspect of the country when not under cultivation, is bare and uninviting, owing to the numerous loose stones which cover the surface in every direction, and the almost total absence of trees; in the latter respect it must have greatly altered within the last 30 years, as both Hamilton and Annesley speak of the number of palmira trees to be seen.

Rivers.

The Toombuddra, upon the south bank of which the fort and pettah are built, rises in the western ghauts, and shortly after receiving the Haggaree, becomes the boundary stream between the Kurnool country and the Dooab; it then

runs in a direct course east until it reaches Kurnool, where it unites with the Henderry, and winding to the northward falls into the Kistnah at Coodely-sungham, about 15 miles below the town.—The rise of its waters is very sudden, and its fall is equally rapid, but for the greatest part of the year it is a turbid stream: the bed consists of sand and pebbles, and opposite the town it is very rocky. The banks are low, and when full it is about 900 yards in breadth, having a depth of water, of from 15 to 25 feet; the stream is rapid, but is fordable from the end of December to the end of May, when it becomes clear, and is then 300 yards in breadth, and little more than knee deep; but it may be crossed at all seasons in basket boats, which are kept in readiness at the Kurnool ford.

The Henderry is a small rapid river which has its source to the south west of Kurnool, it also rises and falls very suddenly; its bed is of yellow sand and rock, and though occasionally not fordable, it is for several months of the year a mere brook.

Fifteen miles to the north of Kurnool is the ford of the Kistnah, on the high road to Secundrabad, and though not so broad as the Toombuddra, the river is deeper; its banks are higher, and when the rains fall in the western ghauts, the volume of water laden with mud, trunks of trees, &c. which rushes down, is very great; its bed is of sand and stones, it is fordable at the same season as the Toombuddra, and like it may at all times be crossed in basket boats.

After the subsiding of the Henderry and Toombuddra, in November, extensive sand banks are left, on which, besides vegetables of different kinds, melons of superior quality are grown. The melon beds are made by digging trenches about the beginning of December, and mixing regur or black soil with the sand, and the fruit becomes ripe about the middle of February. When the Toombuddra is first flooded the melon beds are all swept away, and a stratum of mud is deposited on the sand, close to the walls of the fort and pettah,

this however soon dries, and by subsequent rising of the river is swept away.

Climate. The climate of Kurnool is considered to be healthy. The mean temperature according to Captain Newbold, is about 80°. The prevailing winds are west, and north east. The following observations have been drawn up from a residence of a few months at the station. April, May and part of June, are very hot; in the two former months, the thermometer in the house, ranges from 86° to 98°, the wind being westerly. In July the temperature varies from 75° to 87°, the first half of the month is cloudy, with strong westerly breezes, the other showery, with west winds. In August, frequent showers, and occasionally heavy rain, with thunder and lightning occur, the wind being west; and the thermometer ranging from 82° to 87°. September, cloudy and hazy in the mornings, the evenings close, with occasional rain, thermometer from 76° to 88°. October weather the same as in September till the 12th, or about the middle of the month, when the wind changes to north east. November is occasionally cloudy, but for the most part clear and bracing, thermometer from 76° to 82°. December, one or two rainy days occur but for the most part it is clear and bracing, thermometer 64° to 78, wind north-east.

Soil. The prevailing soil is black cotton ground lying upon limestone, which is intersected by trap dykes, and is seldom more than eight or ten inches in depth, the surface being covered with limestone schale, but in the vicinity of the hills, it is red and sandy. The hills which are near the town are of sandstone, and sandstone conglomerate, passing into arenaceous schists.

Staple productions. The staple productions in the vicinity of the town, are sugar, cotton, jouaree, coolty, chinna, runganee, moung, nurssoor, and tobacco; and also a variety of vegetables and fruits, as carrots, turnips, onions, beet, beans, peas, brinjals, radishes, cabbages, lettuces; plantains, oranges,

lemons, pineapples, pomegranates, peaches, mangoes, and melons. Of the vegetable productions of the Materia Medica, there are found the ricinus communis, croton tiglium, cucumis colocinthidis, datura stramonium, dolichos pruriens, punica granatum, sinapis alba, piper cubeba, cassia fistula, rosa centifolia, ruta graveolens, atropa belladonna, amomum zingiber, coriandrum sativum, ficus carica and citrus medicus.

A good sort of pony is bred at Kurnool, and the game fowls are remarkable for their beauty and courage.

Several kinds of excellent fish are found in the Toombuddra, the chief of which are carp and murrell.

Manufactures. Kurnool has its manufactures of muslins, stout calicoes, cotton carpets, gold and silver ornaments, copper and brass vessels, iron utensils, clay goglets, slippers, saddle cloths, indigo and arrack. European and Chinese goods, as well as the produce of the district, are to be obtained in the shops, and many useful as well as medicinal articles in the bazaars.

Inhabitants, customs of. The Patans of Kurnool are a handsome race, polite, and courteous in manners and address, and fond of horsemanship, cock-fighting and ram-fights. The better sort live well, animal food and wheaten cakes constituting a large portion of their food, but the poorer classes and labouring hindoos, subsist chiefly on rice, jouaree and bajree, with meat or fish occasionally. The poor all sleep upon cots, or char-paes. The inhabitants in general, notwithstanding they are said habitually to make use of opium and tobacco, attain to a good old age, though without any remarkable instances of longevity.

Fort of Kurnool. The fort built upon the base of the triangle before mentioned, is 879 yards in length from north to south, and 689 in breadth, from east to west; its walls are built of limestone and sand stone, are 17 feet high, and 9 feet thick; the northern and eastern faces are washed by the Toombuddra, and a deep and broad dry ditch runs from west to south.—

Several large circular bastions are placed at certain distances; there are three gate ways, one opening to the westward, another towards the Toombuddra on the east, and a third communicating with the pettah to the south. The fort is inhabited chiefly by the relatives of the late Nabob and their followers, by the government agents and subordinates, and by the officers of the native regiments stationed here; the houses are small having all formerly been native dwellings. The palace, cutcherry, barracks, arsenal and hospital, are also situated within the fort.

The soil in most parts is shallow; the limestone rock being found at a few inches in depth, and in some places projecting through the surface; notwithstanding this a great number of trees principally the banian, margosa and tamarind, grow in the compounds.

The fort is well drained by means of covered sluices communicating with the Toombuddra; and the inhabitants, in number 2,000, are said to be remarkably healthy.

Pettah or native town. The pettah stretches from the south gate of the fort, to the point of the triangle, where the rivers meet; its sides are nearly equal, and it is about two miles and a half in circumference, surrounded by a wall 10 feet high, and a ditch, for the most part dry, but in some places filled with stagnant water. The houses in number amounting to 3854, are meanly built, and the streets narrow and badly drained, strangers being struck with the number of burial grounds, and grave stones to be seen, and with their neglected condition. The population amounts to 20,019—11,215 of whom are mahomedans. There is a good bazaar, and the police is under the jurisdiction of a british agent and magistrate.

The town is plentifully supplied with excellent drinking water from the rivers, but that procured from wells is brackish.

Regimental lines. The regimental lines are situated on a plain, about 300 yards from the west gate of the fort, with which there is a communication by means of a cause-way. The parade ground

is contiguous to the lines, and the village of Nova pettah lies between them and the Toombuddra, their length is 371 yards, from east to west, and 170 in breadth; the streets are wide and the houses good, but the drainage is bad, for want of a sufficient fall. The population is about 4,000, and that of Nova-pettah about 2,000.

The Russalah lines, are situated a little to the north of the Henderry, the houses are good and neat, the streets wide, and the drainage towards the river perfect; the number of troopers is 230.

Barracks. The barracks for the native infantry are situated in the fort, near the western gate, and close to the drill ground; the building is 170 feet long, with a verandah at each side, and is capable of containing 1026 stand of arms. In the fort there is also a barrack for 30 European artillery, with sergeants quarters, a cook room, congee house, privy, and a shed for guns.

Hospital. The hospital is near the east or water gate, and is a building of 52½ feet in length, by 29½ broad, and 10½ high; it is well ventilated and capable of containing 30 cots, as many however as 50 patients have been accommodated in it at one time; it lies north and south, and has a small yard in front surrounded by a wall four feet high, within which is a cook room and privy.

The surgery is a room of 19, by 17½ feet, communicating with the hospital. The situation of the hospital is rather confined, but a site has been marked out near the drill ground, where a new hospital is about to be erected.

Prevailing diseases. The prevailing diseases are cholera, small pox, fever and syphilis; a vaccine establishment has been kept up within the last four or five years. Several *hakeems* reside at Kurnool, whose knowledge is obtained from the writings of the old Arabian physicians, they are unacquainted with the circulation of the blood; and of anatomy they are very ignorant, but possess a copious materia medica.

Cholera was very fatal in 1843, in the pettah, having been apparently introduced by corps passing through, but for 10 or 12 years previous thereto, neither it, nor any other epidemic prevailed to any extent, though a few isolated cases, occurred each year.

One regiment of native infantry has been stationed here since 1840, and table No. 19, shews the nature of the diseases and amount of mortality which have occurred during a period of three years, from an aggregate strength of 3810 men.

No. 19.—*Table exhibiting the number of Admissions and Deaths amongst the native Troops stationed at Kurnool, during a period of three years, from* 1840 *to* 1842 *inclusive.*

Aggregate strength. 3810. CLASSES. DISEASES.		Admitted.	Died.	Admissions from each class.	Deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers	Febris ephemera	250	0	685	2	17 ·979	0 ·291
	,, intermit quot.	403	2				
	,, remittens	5	0				
	,, com: continua	27	0				
	Cholera	40	19	40	19	1 ·049	47 ·500
Diseases of the abdominal viscera	Diarrhœa	78	0	202	5	5 ·301	2 ·475
	Dysenteria acuta et chronica	53	5				
	Colica	5	0				
	Obstipatio	6	0				
	Hœmorrhois	9	0				
	Icterus	1	0				
	Gastritis	5	0				
	Hepatitis	2	0				
	Dyspepsia	43	0				
Diseases of the Lungs	Catarrhus	2	1	18	4	0 ·472	22 ·222
	Asthma	1	0				
	Phthisis pulmonalis	3	1				
	Pneumonia	10	1				
	Palpitatio	2	1				
Diseases of the Brain	Apoplexia	1	0	11	0	0 ·288	0 ·000
	Paralysis	7	0				
	Mania	3	0				
Eruptive fevers	Varicella	44	0	57	0	1 ·496	0 ·000
	Rubeola	13	0				
Dropsies	Anasarca	6	3	6	3	0 ·157	50 ·000
	Ascites	0	0				
Rheumatic affections	Rheumatismus acutus et chronicus	236	2	236	2	6 ·194	0 ·847
Venereal affections	Syphilis primitiva	111	0	168	0	4 ·409	0 ·000
	,, consecutiva	6	0				
	Gonorrhœa	29	0				
	Hernia humoralis	21	0				
	Strictura urethræ	1	0				
Specific diseases	Lepra	2	0	50	1	1 ·312	2 ·000
	Beriberi	2	1				
	Dracunculus	21	0				
	Atrophia	17	0				
	Scrophula	8	0				
	Morbi oculorum	51	0	51	0	1 ·338	0 ·000
	,, cutis	71	0	71	0	1 ·863	0 ·000
	Other diseases	445	1	*445	1	11 ·679	0 ·224
	Total	2040	37	2040	37	53 ·543	1 ·813

* Of this number were Phlogosis 122, Ulcus 66. Per centage of deaths to strength 0·970.

GHOOTY.

General description of the Town and Hill fort of Ghooty.

Ghooty is distant, east from Bellary 54 miles by the road, its latitude is 15° 8″ north, and it is in 77° 42 east longitude; it consists of a cluster of fortified hills nearly surrounding a lower fort and native town; outside the fortifications are the remains of a military cantonment, and a considerable pettah.

Five principal roads lead to this station, viz. from Bellary on the west, Adoni on the north west, Kurnool on the north, Cuddapah on the south east, and Anantapore on the south. The country around is a plain nearly on the same level with Bellary, being 1182 feet above the sea, with many rocky hills rising abruptly from it; the soil is dry and gravelly near the hills, but in other situations it is chiefly black cotton ground.

The highest of the fortified hills, which is about double the elevation of any of the others, is 989 feet above the plain; it is a rock of sienite, precipitous in its upper third, and strongly fortified. On the summit of this hill there are several buildings, now occupied by about 30 state prisoners confined here; there are also several tanks and reservoirs, the water of which is very good, and used by the prisoners.

About half way down the principal hill, on its north side, is a fortified shoulder of considerable extent, called Maha Ghooty, with barracks at one time occupied by a wing of a European regiment, but which are now falling to decay.

The other lower hills forming the cluster, are defended by round towers at certain intervals, connected by stone walls but now in several places broken down.

The town is in the centre of the cluster, and being protected by the hills, little besides a strong gate has been thought

necessary for its security, the wall on each side, connecting the hills on its right and left.

The lower fort, as well as the pettah and cantonment lie upon the west side, and upon the east is the small village of Cottepettah, a tank and a few rice fields; to the south and north there is some dry cultivation intermixed with barren rocky tracts.

The old town of Ghooty consists principally of one main street leading from the lower fort gate, to the cause-way by which the ascent is made to Maha Ghooty, and the hill fort; it is now but thinly inhabited, and many of the houses as well as public buildings, are in ruins, there is a small hospital and quarters for a serjeant, which are in good repair.

The cantonment, at one time of considerable extent, is, with the exception of two or three houses, in ruins. There is a good parade ground between the officers houses and the hills, at the north end of which is a small place of arms and some store rooms, the sepoys' huts being in the immediate vicinity, upon good dry ground.

The pettah is of moderate size, having one principal street leading from the lower fort gate eastward on the Bellary road, for about half a mile. The houses are tolerably good, and it is well drained.

On the west side of the cantonment is a large tank with some wet cultivation, the bed of this tank is dry during the hot weather, and emits much effluvia. There is a smaller tank, though of considerable size, north of the pettah. Independent of these two principal reservoirs, there are numerous smaller tanks and wells dispersed around, the water of many of them being very good, but that of others brackish.

There is no stream of any importance near Ghooty, and but little wood to be seen; two thriving plantations of fruit and other trees, have however lately been made by the pub-

lic authorities. On the north side of the pettah, and along the roads are many fine old bannian, tamarind, and neem trees.

The surrounding cultivation is confined chiefly to dry grain.

Ghooty contains 4,386 inhabitants, of whom 413 are brahmins, 237 koomtees, 1077 mussalmans, 2,411 soodras, 218 pariahs, and 40 christians. Their occupations are chiefly farming and weaving, but many are employed as artificers and merchants. All classes appear to attain a fair average length of life.

There are six *telloogoo*, one *tamil* and three *persian* schools, which are well attended.

A charitable establishment supported by the state, named "Munro's Choultry" in memory of the late Sir Thomas Munro, exists here.

The principal diseases amongst the inhabitants, are continued fever of a slight description, and cholera which at times appears in a very malignant form; guinea worm is also common.

Ghooty, formerly the head quarters of a brigade, including one European regiment, is now garrisoned by two companies of native infantry.

The sepoys enjoy excellent health; a few cases of fever, rheumatism, syphilis and other usual and simple affections, in general constitute the sick list. The place has been several times attacked by epidemic cholera of late, after the encamping of infected bodies of troops in its vicinity, but in none of these visitations has it prevailed to any great extent. The returns of sick not having been forwarded to the medical board office separately, the usual table of diseases cannot be given here.

REMARKS ON THE GENERAL TABLES.

Remarks on the General tables of disease.

The general table No. 1, for European troops includes the sick of H. M.'s regiments, and of one company of artillery at Bellary, the only place in the division occupied by European troops. It exhibits the admissions into hospital, and the mortality from the most important diseases, each half year, for a period of ten years from 1829 to 1838 inclusive, as in the preceding reports. The annual per centage of sick to strength, of deaths to sick, and of deaths to strength, are also given; the average of these, as exhibited in the abstract table No. 2, being 199·467, 1·584, and 3·159 respectively.

In the years 1834 and 1838, the admissions into hospital were considerably above the average, occasioned in the former period principally by fever, and in 1838, by ophthalmic disease also. The mortality exceeded the average in 1838 and 1837; in both years almost exclusively the result of epidemic cholera in H. M.'s 55th and 41st regiments, when in barracks at Bellary.

During the ten years, the total admissions have been 17,992 and the total deaths in hospital 285, from an aggregate strength of 9,030 men.

c

The most prevalent diseases have been *fevers, syphilis, ophthalmia, rheumatism, dysentery, hepatitis, diarrhœa and thoracic diseases;* and the greatest mortality has resulted from *cholera, dysentery, hepatitis, fever and thoracic diseases;* the per centage from each of which is noted in the table No. 2.

The admissions are pretty equal during each of the half yearly periods (table No. 2;) but the mortality is slightly in-

creased during the second half yearly period from dysentery hepatitis and fever.

Tables No 3 and 4, shew the amount of the same diseases, and mortality which have occurred amongst the native troops at the head quarters of the division and at Cuddapah and Ghooty, during the same period of years. The total admissions have been 17,804, and 581 deaths have occurred from an aggregate strength of 35,999 men; the average per centage of sick to strength being 49·456, of deaths to sick treated 3.263 and of deaths to strength 1·613.

The admissions were considerably above the average in 1834, 35, 36, and 1838, principally from fever, and in the last mentioned year, partly from cholera also; the mortality was greatly above the average in 1833 and 1838, the result in both years of epidemic cholera, and which occurred almost exclusively in corps while marching in the division; e. g. the 17th regiment N. I. in January 1833, *en route* to Cuddapah, lost 63 men, out of 144 attacked; the 16th regiment N. I. in October, on its march from Palavaram to Cuddapah, buried 55 men, 125 having been attacked; and the 52d regiment in the same month of that year while marching through the western part of the division, lost 22 men out of 80, who were attacked with this disease. Again, in January 1829, the 28th regiment N. I. while marching through this division, *en route* to Jaulnah, suffered rather severely from cholera, and buried 19 men, out of 42 attacked; in 1831, the 45th regiment was attacked with the disease while marching to Palavaram, and buried 8 out of 41, and lastly in 1839, out of the number of admissions and deaths under this head in the general table No. 3, no less than 36 with 16 deaths occurred in the 14th regiment, in the month of April, while marching in the division.

The most prevalent diseases, as shown in table No. 4, have been *fevers, rheumatism, syphilis, cholera, dysentery, diarrhœa*

CEDED DISTRICTS.

Table No. 1.—Return of sick of the European Troops, exhibiting the half yearly Admissions and Deaths from the principal diseases, and those which have been Epidemic or Endemic during the period of ten years, from 1829 to 1838.

Years.		Admissions and Deaths.	Diseases. Apoplexy.	Asthma.	Atrophy.	Beriberi.	Cholera.	Cutaneous diseases.	Delirium Tremens.	Diarrhœa.	Dysentery.	Elephantiasis.	Fever ephemeral.	Fever continued.	Fever intermittent.	Fever remittent.	Guinea worm.	Hepatic diseases.	Insanity.	Leprosy.	Ophthalmy.	Rheumatism.	Small pox.	Syphilis.	Thoracic diseases.	Ulcer phagedenic.	Wounds & injuries.	Other complaints.	Strength each year.	Annual per centage of sick to strength.	Annual per centage of deaths to sick treated.	Annual per centage of deaths to strength.
1829	Admitted. 1st half.	935	0	0	0	12	0	0	30	75	0	0	57	44	30	0	58	3	0	171	88	0	116	3	0	55	213				
	2d ,,	935	1	0	0	8	0	0	17	55	0	0	130	9	12	0	44	2	0	245	62	0	114	4	0	53	209				
	Died. 1st half.	5	0	0	0	0	0	0	0	2	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	933	204 ·767	0 ·687	1 ·408
	2d ,,	8	1	0	0	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0				
1830	Admitted. 1st half.	702	0	0	0	22	0	0	22	31	0	0	69	16	3	0	34	0	0	158	64	0	108	4	0	27	152				
	2d ,,	774	0	0	0	10	0	0	21	61	0	0	49	32	42	0	28	1	0	190	50	0	116	10	0	45	138				
	Died. 1st half.	9	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	3	919	761 ·269	1 ·282	2 ·067
	2d ,,	10	0	0	0	0	0	0	0	5	0	0	0	0	2	0	1	0	0	0	0	0	0	1	0	1	0				
1831	Admitted. 1st half.	798	0	0	0	19	0	0	14	70	0	0	107	18	11	0	26	2	0	71	33	0	159	11	0	48	199				
	2d ,,	823	0	0	0	6	0	0	36	70	0	6	39	3	4	0	31	2	0	147	44	0	184	42	0	40	197				
	Died. 1st half.	12	0	0	0	4	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	1	4	0	0	0	876	185 ·045	1 ·295	2 ·397
	2d ,,	9	0	0	0	1	0	0	1	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	2				
1832	Admitted. 1st half.	708	0	0	0	1	0	0	23	13	0	5	144	11	0	0	12	0	0	38	36	0	183	13	0	15	212				
	2d ,,	690	0	0	0	2	0	0	28	35	0	17	57	1	1	0	31	1	0	110	35	0	195	4	0	39	130				
	Died. 1st half.	12	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	0	2	0	0	4	853	163 ·657	1 ·361	2 ·227
	2d ,,	7	0	0	0	1	0	0	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0				
1833	Admitted. 1st half.	887	1	0	0	77	0	0	63	28	0	13	140	0	0	0	32	5	0	121	39	0	159	23	0	25	161				
	2d ,,	897	2	0	0	7	0	0	46	48	0	22	96	1	0	0	36	0	0	155	58	0	220	18	0	30	158				
	Died. 1st half.	43	1	0	0	32	0	0	1	2	0	0	1	0	0	0	2	0	0	0	0	0	0	3	0	0	1	867	205 ·767	3 ·251	6 ·689
	2d ,,	15	2	0	0	5	0	0	1	3	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	1				
1834	Admitted. 1st half.	797	0	0	0	1	1	37	58	53	0	19	116	5	14	0	48	0	0	83	31	0	130	37	0	62	113				
	2d ,,	1,069	1	0	0	1	0	46	61	69	0	24	122	127	45	0	33	0	0	110	55	0	148	32	0	72	119				
	Died. 1st half.	11	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	1	0	0	3	762	244 ·881	1 ·554	3 ·805
	2d ,,	18	1	0	0	0	0	1	1	4	0	0	1	0	3	0	4	0	0	0	0	0	0	1	0	0	3				
1835	Admitted. 1st half.	982	0	0	0	0	2	23	30	45	0	23	62	205	2	0	44	0	0	78	80	0	187	70	0	35	96				
	2d ,,	942	0	0	0	0	2	47	35	36	0	13	92	161	0	0	27	0	0	80	92	0	131	40	0	49	137				
	Died. 1st half.	6	0	0	0	0	0	0	0	1	0	0	0	2	1	0	1	0	0	0	0	0	0	1	0	0	0	930	206 ·881	1 ·039	2 ·150
	2d ,,	14	0	0	0	0	0	0	1	4	0	0	2	1	0	0	1	0	0	0	0	0	1	2	0	2	0				
1836	Admitted. 1st half.	787	0	0	0	0	4	31	21	20	0	6	23	78	1	0	34	1	0	44	86	0	153	42	0	50	123				
	2d ,,	983	0	0	0	7	5	16	42	114	0	18	80	96	5	1	56	3	0	64	60	0	218	33	0	45	130				
	Died. 1st half.	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2	995	177 ·889	2 ·090	3 ·718
	2d ,,	33	0	0	0	0	2	0	0	12	0	0	3	1	0	0	6	1	0	0	1	0	1	2	0	0	4				
1837	Admitted. 1st half.	735	1	0	0	1	2	6	18	27	0	5	53	15	2	0	36	0	0	37	65	1	231	31	0	39	165				
	2d ,,	1,308	0	0	0	38	4	36	37	106	0	2	340	19	1	0	85	0	0	76	90	0	97	45	0	76	236	1038	196 ·830	2 ·055	4 ·016
	Died. 1st half.	13	1	0	0	0	0	0	2	4	0	0	1	0	0	0	3	0	0	0	0	0	0	1	0	0	1				
	2d ,,	29	0	0	0	12	0	2	1	5	0	0	2	1	0	0	2	0	0	0	0	0	0	4	0	0	0				
1838	Admitted. 1st half.	1,478	0	1	0	5	14	37	62	109	0	18	391	14	0	1	73	0	0	39	131	0	95	83	0	103	317				
	2d ,,	738	0	0	0	9	5	20	19	47	0	9	78	30	1	3	51	0	0	24	104	0	70	17	0	31	199				
	Died. 1st half.	15	0	0	0	2	0	0	0	1	0	0	2	0	0	0	3	0	0	0	0	0	0	3	0	0	4				
	2d ,,	12	0	0	0	3	0	0	1	3	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	1	857	258 ·576	1 ·218	3 ·150

CEDED DISTRICTS.

Table No. 3.—Return of sick of the Native Troops, exhibiting the half-yearly Admissions and Deaths from the principal diseases, and those which have been Epidemic or Endemic during the period of ten years, from 1829 *to* 1838.

| Years. | | Diseases. | | |

CEDED DISTRICTS.

No. 5.—*Table exhibiting the number of Admissions, and Deaths from each class of disease for 5 years.*

EUROPEAN TROOPS.

CLASSES. DISEASES.	From 1834 to 1838. Aggregate strength each year.		Admissions and deaths from each class of disease.				Total admissions from each class.	Total deaths from each class.	Average annual admissions to each hundred of strength.	Average annual per centage of deaths to ad.
	1st Half.	2d Half.	1st Half.		2d Half.					
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.		
Fevers..... Febricula.....	71	0	60	0						
" Internit. quot.	307	0	250	0						
" tertiana.....	19	0	26	1	1169	11	1264	16	2433	27 — 2·22	97	2·22	1·11
" remittens.....	19	0	21	0						
" continua.....	705	8	712	10						
Cholera.....	7	3	10	17	7	2	50	17	92	19 — 20·65	3·68	20·65	5·15
Diseases of the abdominal viscera.	Dysenteria acuta.....	242	7	330	17	254	7	373	23	626	23 — 3·67	25·04	3·67	5·86
	" chronica.....	0	0	13	2									
	Diarrhœa.....	180	2	221	4									
	Colica.....	11	0	21	0									
	Hepatitis.....	7	0	11	0									
	Hæmatemesis.....	17	0	35	0	289	3	389	4	678	7 — 1·03	27·12	1·03	1·03
	Hæmorrhoides.....	9	0	5	0									
	Peritonitis.....	0	0	0	0									
	Gastritis.....	2	1	3	0									
	Dyspepsia.....	12	0	20	0									
	Hepatitis acuta.....	220	7	228	17	354	8	350	13	709	21 — 11 — 2·96	29·54	4·23	2·96
	" chronica.....	21	1	27	0									
Diseases of the Lungs and Heart.	Catarrhus.....	274	1	73	1									
	Asthma.....	7	0	6	0									
	Phthisis pulmonalis.....	9	1	8	4									
	Hæmoptysis.....	3	0	2	0	253	6	147	10	400	16 — 9 — 4·00	16·00	3·60	4·00
	Pleuritis.....	0	0	0	0									
	Pneumonia.....	62	4	71	2									
	Carditis.....	0	0	0	0									
	Palpitatio.....	0	0	1	0									
	Dyspnœa.....	6	0	4	0									
Diseases of the Brain.	Amaurosis.....	1	1	1	1									
	Epilepsia.....	2	0	1	0									
	Paralysis.....	1	1	1	2									
	Cephalalgia.....	47	0	47	0									
	Phrenitis.....	0	0	1	1									
	Situs vitiosus.....	0	0	0	0									
	Amentia.....	0	0	0	0	16	6	279	7	295	17 — 6 — 5·76	5·90	2·03	5·76
	Mania.....	2	0	2	0									
	Hydrocephalus.....	0	0	0	0									
	Delirium Tremens.....	69	1	88	1									
	Ebrietas.....	45	0	77	1									
Diseases of the Eye.	Morbi oculorum.....	811	0	254	0	281	0	274	0	555	0 — 0 — 0·0	11·10	0·0	0·0
Do. of the Skin.	cutis.....	21	0	16	0	23	0	16	0	39	0 — 0 — 0·0	7·80	0·0	0·0
Eruptive Fevers.	Variola.....	0	0	0	0									
	Varicella.....	0	0	0	0									
	Rubeola.....	0	0	0	0	4	0	0	0	4	0 — 0 — 0·0	0·80	0·0	0·0
	Scarlatina.....	0	0	0	0									
	Erysipelas.....	0	0	0	0									
Dropsies.....	Anasarca.....	0	0	1	0	1	0	0	0	1	0 — 0 — 0·0	0·20	0·0	0·0
	Ascites.....	2	1	2	0									
	Hydrothorax.....	0	0	0	0									
Rheumatic affections.	Rheumatismus acutus.....	79	0	265	1	281	0	402	3	708	1 — 17 — 0·14	141·60	19·83	0·14
	" chronicus.....	0	0	0	0									
	Neuralgia.....	0	0	0	0									
	Odontalgia.....	0	0	1	0									
Venereal affections.	Syphilis primitiva.....	360	0	382	1	802	1	661	1	1463	2 — 21 — 0·13	292·60	0·68	0·13
	" consecutiva.....	0	0	23	0									
	Gonorrhœa.....	42	0	256	0									
	Hernia humoralis.....	2	0	31	0									
	Stricture urethræ.....	8	0	7	0									
Specific diseases.	Atrophia.....	1	0	0	0									
	Scirrhus.....	0	0	0	0									
	Elephantiasis.....	0	0	0	0									
	Lepra.....	0	0	0	0									
	Dracunculus.....	4	0	4	0	13	0	7	0	20	0 — 0 — 0·0	4·00	0·0	0·0
	Ulcus phagedænicum.....	0	0	0	0									
	Scrophula.....	0	0	2	0									
	Scorbutus.....	0	0	0	0									
Punishment.	Pœnæ.....	25	0	23	0	25	0	23	0	48	0 — 0 — 0·0	9·60	0·0	0·0
Wounds and injuries.	Fractura.....	11	0	19	0									
	Luxatio.....	1	0	1	0									
	Pulsatilla.....	31	0	38	0									
	Vulnus sclopetorum.....	7	0	26	0	292	0	273	2	565	2 — 2 — 0·35	113·00	0·35	0·35
	" incisum.....	25	0	29	0									
	Contusio.....	186	0	170	0									
	Ambustio.....	2	0	0	0									
Other diseases, including Phlegosis, Ulcus, &c.		568	4	567	4	568	4	567	4	*1135	8 — 24 — 0·70	227·00	2·10	0·70
Total.....		4779	49	5040	106	4779	65	5040	103	9819	155	814	2·95	1·578

Average per centage of deaths to strength, during these five years, has been 2·95.

* Of this number were
Phlegmasiæ..... 179 0
Do. do. Ulcus..... 280 0
Do. do. Subcutaneum 266 1
Total.... 814 1

* The deaths under this head, include besides the one accounted for in the preceding note, three from erysipelas, two from epivoitis and two not particularized.

CEDED DISTRICTS.

No. 7.—Table exhibiting the Admissions and Deaths, from the most particular diseases, amongst the European and Native Troops in the Ceded Districts, during the ten years, from 1829 to 1838 inclusive, with the proportion each bears to the total number of Admissions and Deaths.

	Cholera.		Fevers.		Dysentery.		Hepatitis.		Diarrhœa.		Thoracic diseases.		Rheumatism.		Syphilis.		Total from these diseases.	
	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.	Ad. & deaths.	Prop.
Europeans.																		
Total Admissions....17,092	226	1/76	3577	1/5	1112	1/15	844	1/20	703	1/24	522	1/33	1296	1/13	3026	1/6	11306	2/3
„ Deaths..... 285	62	1/5	31	1/9	56	1/5	45	1/6	9	1/31	30	1/10	2	1/143	5	1/57	240	5/6
Natives.																		
Total Admissions....17,804	655	1/27	7019	2/5	256	1/69	19	1/937	343	1/51	189	1/94	1778	1/10	909	1/19	11168	2/3
„ Deaths..... 581	283	1/2	97	1/6	12	1/48	3	1/194	9	1/64	50	1/35	22	1/794	3	1/194	479	5/6

No. 8.—The following table shows the per centage of Admissions from the same diseases to the strength, of deaths to sick treated, and of deaths to the strength: it exhibits also the difference in these respects, amongst the European and Native sick.

	Cholera.		Fevers.		Dysentery.		Hepatitis.		Diarrhœa.		Thoracic diseases.		Rheumatism		Syphilis.		Total from these diseases.		Grand Total.	
	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.	Ad. & deaths.	Per centage.
European Troops. STRENGTH, 9020.																				
Per centage of sick to strength	226	2·505	3577	39·655	1112	12·328	844	9·356	703	7·793	522	5·787	1296	14·368	3026	33·547	11306	125·343	17992	199·467
„ of deaths to sick treated.	62	27·433	31	0·866	56	5·035	45	3·331	9	1·280	30	5·747	2	0·154	5	0·165	240	2·122	285	1·584
„ of deaths to strength....	62	0·687	31	0·343	56	0·620	45	0·498	9	0·099	30	0·332	2	0·022	5	0·055	240	2·660	285	3·159
Native Troops. STRENGTH, 35099.																				
Per centage of sick to strength	655	1·819	7019	19·497	256	0·711	19	0·052	343	0·952	189	0·525	1778	4·939	909	2·525	11168	31·020	17804	49·456
„ of deaths to sick treated.	283	43·206	97	1·381	12	4·687	3	15·789	9	2·623	50	26·455	22	1·237	3	0·330	479	4·736	581	3·263
„ of deaths to strength....	283	0·786	97	0·269	12	0·033	3	0·008	9	0·024	50	0·138	22	0·061	3	0·008	479	1·330	581	1·613

and ophthalmia; and the most fatal have been *cholera, fever, thoracic diseases, rheumatism and dysentery.*

The tabular statements No. 7 and 8, have been framed similarly to those given in the preceding divisions, from the abstract returns No. 2 and 4, and exhibit much interesting information relative to the corresponding diseases amongst both European and native troops.

In the Tables No. 5 and 6, are exhibited the admissions and deaths from each disease, in the various classes therein given, during a period of five years from 1834 to 1838, as in the preceding reports; the total admissions from each class, and the mortality are also shewn, and the per centage of sick to strength, and of deaths to sick treated. The total admissions amongst the European troops amount to 9,819, with 155 deaths, from an aggregate strength of 4,582; the per centage of admissions to strength being 214·295, of deaths to sick treated 1·578, and of deaths to strength 3.382; the difference in these respects, from the results in the preceding table for ten years, is very trifling.

The total admissions amongst the native troops, during the same period of five years, (table No. 6) have amounted to 10,083, and 255 deaths have occurred from an aggregate strength of 15,594 men; thus giving 64·659 as the annual admissions for every 100, and 2·529 deaths per cent on the sick treated; while during the same period, the per centage of deaths to strength has been 1·635.

The tabular statements No. 9 and 10, exhibit at one view the proportion and per centage of admissions and deaths from the principal classes of disease, both amongst the European and native troops.

Fever is the most prevalent disease amongst the European troops at Bellary; but fortunately it is not of a bad character, and cases of the remittent type, except in certain seasons, are comparatively rare; the continued and intermittent forms are most prevalent. Fevers prevail principally in November and December, gradually decline in January, February and March, and occur but rarely in the other months of the year.

Continued fever, (see table No. 2) forms a large proportion of all the admissions, nearly 1-8th part; the principal cause to which it is ascribed, by the medical officers in charge of the European troops, are irregular habits, exposure to the heat of the sun during the day, and to cold at night when on guard. In many instances this fever assumes an acute inflammatory character, with local determination to the head and chest, the latter complication occurs chiefly in the cold season, and in such cases very active antiphlogistic treatment is requisite; at other seasons low typhoid symptoms occasionally appear in the course of the disease.

Intermittents are principally of the quotidian type, and as already mentioned, the cause is not clearly evident or easily discovered, as there is no rank vegetation or marshy ground near the station. The existence and marked prevalence of this form of fever at Bellary, may therefore tend to favour the opinion that the disintegration or decomposition of rocks, gives rise to, or is attended with the evolution of miasm, or a gaseous fluid of a deleterious nature, the cause of this fever; or, that the noxious effluvia may be exhaled from the black cotton soil. It is proper however to observe, that the late Staff Surgeon Smith, who had been many years at this station, has recorded in his report dated 1836, "that he never knew an instance of a European officer being seized with an original attack of intermittent fever at Bellary" and he adds "that the chief exciting causes of this disease amongst the soldiery, must be looked for in their careless imprudent habits, and exposure at night.

Dysentery occurs chiefly during the wet weather in July and August, but the cases are not numerous, and those only who are highly predisposed to it, appear to be attacked by this disease at Bellary.

Cases of hepatitis occur pretty equally throughout the year, but rather more frequently in July and August, than in the other months.

Cholera when it visits this place, almost always appears in the hot dry months, and the most severe epidemic attacks have occurred in seasons in which there has been a marked deficiency in the usual fall of rain; and another irregularity in the usual course of the season, which has been several times remarked previous to an outbreak of this disease, is the absence of thunder.

Much has been said and written, relative to the frequency of the appearance of cholera at Bellary, and the great mortality occasioned by it amongst the European troops. Table No 2, framed from the monthly returns from the division, shews exactly, the number of cases and deaths which have occurred each year; and the following table No. 20, exhibits at one view, the total number of cases of cholera treated in hospital, and the mortality which it has occasioned in each division of the army, for a period of ten years, from 1829 to 1838 inclusive; the strength is likewise given, and also the per centage of admissions to strength, of deaths to sick treated, and of deaths to strength. The average in these respects for the same period, from the grand total of the European army, is placed in the first column, which at once points out the excess or otherwise, in each of the several divisions; and the last line of the table, in which is given the per centage of deaths to strength, gives each division its place as to the relative amount of mortality produced by this disease. It will be seen, that Bellary is below the average, and that it stands 6th.

Again, as regards the general healthiness of the European troops at Bellary, compared with the other divisions of the army, the table has been extended for the purpose of exhibiting the total admissions and mortality in each division, during the same period; in which it will be seen, (table No. 21) that the ratio of deaths to strength at Bellary is considerably below the average; and in this point of view it stands 2nd in the scale.

But although this station may be considered a very healthy one for European troops, yet the sick list is generally high, and this arises principally from the frequency of venereal cases, and ophthalmic diseases; rheumatism also forms a considerable portion of the sick in hospital. This latter disease appears more frequently in the months of January, February, March and April, and in August and November, than in the other months of the year.

The marked prevalence of ophthalmia is attributed to the extreme dryness of the atmosphere, to the excessive glare and reflection from the numerous large masses of granite in the lower fort, the light colour of the ground and numerous white washed buildings, and to the fine white sandy nature of the soil. The disease commonly appears in the form of the mild purulent ophthalmia, but occasionally the deeper seated parts of the eye are involved, giving rise in such cases to opacity of the cornea, and in some rare instances to destruction of the organ. After depletion the most useful remedies have been found to be the nitrate of silver, and sulphate of copper.

Table No 20.	Grand Total.	Bellary.	Mysore.	Cannanore.	Southern Division	Centre "	Presidency.	Northern Division	Hyderabad.	Nagpore.	Tenasserim.
Strength.....	103431	9020	15590	7959	8922	12402	13981	6334	10557	9574	9092
Admissions from Cholera.	2833	226	641	76	256	493	392	326	234	153	36
Deaths from Cholera.....	770	62	92	13	75	194	136	99	43	39	17
Per centage of Admissions to strength.....	2 ·739	2 ·505	4 ·111	0 ·954	2 ·869	3 ·975	2 ·803	5 ·146	2 ·216	1 ·598	0 ·395
Per centage of deaths to sick treated.....	27 ·179	27 ·433	14 ·336	17 ·105	29 ·296	39 ·350	34 ·693	30 ·368	18 ·376	25 ·490	47 ·222
Per centage of deaths to strength.....	0 ·744	0 ·687	0 ·590	0 ·163	0 ·840	1 ·564	0 ·972	1 ·562	0 ·407	0 ·407	0 ·186
	average. 6		5	1	7	10	8	9	3	4	2
Table No. 21. Total Admissions.....	186865	17992	25425	12187	15144	19319	26057	11670	22933	23092	13046
" Deaths.....	4725	285	437	300	351	728	600	643	664	377	340
Per centage of Admissions to strength.....	180 ·666	119 ·467	163 ·085	153 ·122	169 ·737	155 ·773	186 ·374	184 ·243	217 ·230	241 ·194	143 ·488
Per centage of deaths to sick treated..	2 ·528	1 ·584	1 ·718	2 ·461	2 ·317	3 ·768	2 ·302	5 ·509	2 ·895	1 ·632	2 ·606
Per centage of deaths to strength.....	4 ·568	3 ·159	2 ·803	3 ·769	3 ·934	5 ·870	4 ·291	10 ·151	6 ·289	3 ·937	3 ·739
	average. 2		1	4	5	8	7	10	9	6	3

Amongst the Native troops fever is by far the most prevalent complaint, no less than 2-5ths of the whole admissons having been occasioned by it; and, as will be seen on reference to the table No. 14. for the troops at Cuddapah, the greater proportion occur at that station. In the Cuddapah district generally, fever is the prevailing disease, and the local situation of the cantonment formerly described, may be readily supposed to contribute to its production.

Again, attacks of fever are greatly more numerous amongst the sepoys, than amongst the prisoners in the jail at that station, owing to exposure at night on guard; but the mortality from this disease amongst the sepoys, is very trifling compared with the great number of deaths which occur amongst the prisoners, who are all natives of the district. In the records of the jail it is frequently noted, "that on their (prisoners) first admission into the hospital, especially in those brought from the talook of Goorumcondah, where a bad form of fever is endemic, the sequelae, dropsy and enlarged spleen, are present, the result of repeated attacks," and the great mortality is thus satisfactorily explained.

Next to fever, rheumatism adds most men to the sick list, a complaint which is always common and severe in the Ceded districts.

As it may be interesting to give here a comparative view of the admissions and deaths from cholera amongst the Native troops in the various divisions of the army, in a tabular form, as for the Europeans, the following tables have been framed for the purpose.

From these it is evident that cholera prevails to a greater extent in the Ceded districts, than in any other division of the army; the per centage of admissions, as well as of deaths to strength, being much above the average. It has been frequently observed, that regiments while marching through this division are particularly obnoxious to outbreaks of this disease,

and the remarks given at page 72, instance several such epidemic attacks.—The question here arises to what influence are these to be attributed? and if to a deleterious exhalation emitted from the soil, how is it to be explained, that a regiment shall march over ground from one station to another in a perfectly healthy state, while in another body of men on the same road, after an interval of only three days, cholera shall commit great ravages; instances of this have been witnessed and recorded; while again instances have occurred, where a regiment has been severely attacked with cholera on its march, and another following the same road, after an interval of only two or three days, has altogether escaped.

By the last table it would appear, that as regards the general healthiness of the Native troops, the mortality is above the average in the Ceded districts, especially in the ratio of deaths to sick treated, thus shewing a greater amount of disease of a grave nature, amongst the troops in this division; it will be also seen that the ratio of deaths to strength, is high and in this point of view it stands 8th on the scale.

Table No. 22.	Grand Total.	Ceded Districts.	Mysore.	Cannanore.	Southern Division	Centre ,,	Presidency.	Northern Division	Hydrabad.	Nagpore.	Tenasserim.
Strength.....	568403	35999	70016	39743	71142	54454	60142	81806	81042	49313	14716
Admissions from Cholera.	5346	655	679	267	965	664	263	892	806	148	7
Deaths from Cholera.....	2413	283	262	98	473	287	140	405	377	87	1
Per centage of Admissions to strength.....	0 ·940	1 ·819	0 ·969	0 ·671	1 ·356	1 ·029	0 ·437	1 ·090	0 ·994	0 ·300	0 ·047
Per centage of deaths to sick treated.....	45 ·136	43 ·206	38 ·586	36 ·704	49 ·015	43 ·222	53 ·231	45 ·403	46 ·774	58 ·783	14 ·285
Per centage of deaths to strength.....	0 ·424	0 ·786	0 ·374	0 ·246	0 ·664	0 ·445	0 ·232	0 ·495	0 ·465	0 ·176	0 ·006
	average. 10		5	4	9	3	3	8	7	2	1
Table No. 23.											
Total Admissions.....	347327	17804	46976	22668	42756	31825	25944	72190	46478	30765	9921
,, Deaths.....	9121	581	991	507	1236	993	661	2122	1207	619	204
Per centage of Admissions to strength.....	61 ·105	49 ·456	67 ·093	57 ·036	60 ·099	49 ·353	43 ·137	88 ·245	51 ·351	62 ·387	67 ·416
Per centage of deaths to sick treated.....	2 ·626	3 ·263	2 ·109	2 ·236	2 ·890	3 ·120	2 ·547	2 ·939	2 ·596	2 ·012	2 ·056
Per centage of deaths to strength.....	1 ·604	1 ·613	1 ·415	1 ·275	1 ·737	1 ·539	1 ·099	2 ·593	1 ·489	1 ·255	1 ·386
	average. 8		5	3	9	7	1	10	6	2	4

The following tables, No. 24 and 25, exhibit the sickness and mortality which have occurred amongst H. M.'s troops and the H. C.'s European artillery at Bellary separately, the relative healthiness of these two bodies of men, being thus at once seen. The table for H. M.'s troops, comprises a period of ten years, from 1829 to 1838. The return for 1836, included the first quarter of 1837, and that for 1838 the first quarter of 1839, during which months the regiments were not at Bellary; this circumstance however does not vitiate the general results of the table, as no epidemic disease happened, although the number of deaths is considerably above the total exhibited in the general table No. 2; the increase arising from fever, dysentery and hepatitis. The table No. 25, for the European artillery, comprises a period of nine years, from 1833 to 1841 inclusive, when the same body of men occupied the station for six or twelve consecutive months; previous to 1833, separate returns for the detachment were not forwarded to the Medical Board office.

With regard to the greater amount of sickness and mortality amongst the artillery, compared with H. M.'s troops at this station, and which is in both points, at variance with the experience at all other stations, the following extracts from the staff surgeon's reports dated 1837, will throw some light. "The number of individuals who have been admitted more than once during the six months, amount in H. M.'s 41st regiment, to 17 admitted twice, and 6 admitted three times; while in the artillery, 18 have been admitted twice, 7, three times, 4, four times, 3, five times, and 1, seven times; so that of the admissions, amounting to 129 in the artillery, 95 are composed of, or have been occasioned by 33 individuals. There are many habitual drunkards amongst this body of men, who are frequently in hospital, and it may be mentioned, that this company has been stationed here, detached from head quarters, upwards of eleven years." Dated 1st July, 1837.

"The number of admissions into hospital in the detachment of artillery, arising from intemperance, is truly melancholy, and two of the deaths may be directly ascribed to this cause.—32 cases of ebrietas, 4 of delirium tremens, 14 diarrhœa, and 10 under the head cephalalgia, total 60, resulting solely from hard drinking, have been admitted into hospital." Dated 31st December, 1837.

Table No. 24 and 25.	H. M.'s regiments. *Aggregate Strength*, 7954. From 1829 to 1838 inclusive. Admitted.	Died.	Per centage of sick to strength.	Per centage of deaths to sick.	H. C. Artillery. *Aggregate Strength*, 864. From 1833 to 1841 inclusive. Admitted.	Died.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers	3532	44	44 ·405	1 ·245	412	0	47 ·684	0 ·000
Cholera	*154	61	1 ·936	39 ·610	25	+18	2 ·893	72 ·000
Diarrhœa	636	7	7 ·995	1 ·100	148	3	17 ·129	2 ·027
Dysenteria acuta	1200	72	15 ·086	6 ·000	70	1	8 ·101	1 ·428
,, Chronica	68	3	0 ·854	4 ·411	7	2	0 ·810	28 ·571
Hepatitis acuta	680	35	8 ·549	5 ·147	87	6	10 ·069	6 ·896
,, Chronica	131	9	1 ·646	6 ·870	31	1	3 ·587	3 ·225
Catarrhus	389	3	4 ·890	0 ·771	60	0	6 ·944	0 ·000
Hœmoptysis	11	1	0 ·138	9 ·090	1	0	0 ·115	0 ·000
Asthma	37	2	0 ·465	5 ·405	0	0	0 ·000	0 ·000
Phthisis	41	17	0 ·515	41 ·463	3	1	0 ·347	33 ·333
Pneumonia	171	8	2 ·149	4 ·678	19	1	2 ·199	5 ·263
Apoplexia	6	5	0 ·075	83 ·333	5	5	0 ·578	100 ·000
Epilepsia	21	1	0 ·264	4 ·761	3	0	0 ·347	0 ·000
Paralysis	28	6	0 ·352	1 ·428	2	0	0 ·231	0 ·000
Amentia	3	1	0 ·037	33 ·333	0	0	0 ·000	0 ·000
Mania	18	3	0 ·226	16 ·666	4	1	0 ·462	25 ·000
Ebrietas	91	1	1 ·144	1 ·098	207	0	23 ·958	0 ·000
Delirium Tremens	179	2	2 ·250	1 ·117	37	1	4 ·282	2 ·702
Anasarca	13	2	0 ·163	15 ·384	0	0	0 ·000	0 ·000
Ascites	12	4	0 ·150	33 ·332	0	0	0 ·000	0 ·000
Rheumatismus acutus	830	1	10 ·435	0 ·120	94	0	10 ·879	0 ·000
,, Chronicus	315	0	3 ·960	0 ·000	79	1	9 ·143	1 ·265
Syphilis &c	2694	3	33 ·868	0 ·111	370	1	42 ·824	0 ·270
Morbi oculorum	2022	0	25 ·421	0 ·000	73	0	8 ·449	0 ·000
,, Cutis	106	0	1 ·332	0 ·000	0	0	0 ·000	0 ·000
Other diseases	3411	18	42 ·884	0 ·527	566	3	65 ·509	0 ·530
Total	16799	309	211 ·201	1 ·837	2303	45	266 ·550	11·953

* Cholera prevailed as an epidemic in 1833 and 1837, and a few cases occurred in 1831, 32 and 1838.
† Cholera was epidemic in 1839 when 12 deaths occurred.

Per centage of deaths to strength 3·884.
Do. excluding cholera 3·117.
H. M.'s troops.

Per centage of deaths to strength 5·208.
Do. excluding cholera 3.125.
H. C. troops.

CEDED DISTRICTS.

No. 26.—*Table exhibiting the sickness and mortality amongst the OFFICERS of H. M.'s regiments at Bellary, during a period of ten years, from* 1829 *to* 1838 *inclusive.*

Aggregate strength, 308. CLASSES.	DISEASES.	Admissions.	Deaths.	Totaladmissions from each class.	Totol deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers.....	Febris intermit quot.....	11	0	127	5	41 ·234	3 ·936
	,, remittens....	11	1				
	,, com: cont....	105	4				
	Cholera.....	11	6	11	6	3 ·571	54 ·545
Diseases of the abdominal viscera.....	Diarrhœa.....	52	0	141	0	45 ·779	0 ·000
	Dysenteria.....	27	0				
	Enteritis.....	1	0				
	Obstipatio.....	6	0				
	Hœmorrhois...	2	0				
	Dyspepsia.....	16	0				
	Gastritis.....	1	0				
	Splenitis.....	2	0				
	Hepatitis.....	34	0				
Diseases of the lungs.	Catarrhus.....	11	0	13	2	4 ·220	15 ·384
	Phthisis pulmonalis.....	2	2				
Diseases of the brain.	Apoplexia.....	2	1	5	1	1 ·623	20 ·000
	Mania.....	2	0				
	Delirium Tremens.....	1	0				
Eruptive fevers.....	Variola.....	3	1	4	1	1 ·298	25 ·000
	Erysipelas.....	1	0				
	Anasarca.....	1	0	1	0	0 ·324	0 ·000
	Rheumatismus.	16	0	16	0	5 .194	0 ·000
Venereal affections..	Syphilis primitiva.....	4	0	20	0	6 ·493	0 ·000
	,, consecutiva..	1	0				
	Gonorrhœa....	12	0				
	Hernia humoralis.....	3	0				
	Morbi oculorum	13	0	12	0	4 ·220	0 ·000
	,, Cutis.....	8	0	8	0	2 ·597	0 ·000
	Other diseases..	143	0	143	0	46 ·428	0 ·000
	Total.....	502	15	402	15	162 ·987	2 ·988

NOTE.—Per centage of deaths to strength 4·870

CEDED DISTRICTS.

No. 27.—*Table exhibiting the sickness and mortality amongst the WOMEN of H. M.'s regiment at Bellary, during the same period of ten years, from* 1829 *to* 1838 *inclusive.*

Aggregate strength. 1021. CLASSES.	DISEASES.	Admissions.	Deaths.	Totaladmissions from each class.	Total deaths from each class.	Per centage of sick to strength	Per centage of deaths to sick.
Fevers	Febris intermit quot.	35	0	464	6	45 ·445	1 ·293
	„ remittens.	9	0				
	„ com : cont.	420	6				
	Cholera	25	11	25	11	2 ·448	44 ·000
Diseases of the abdominal viscera	Diarrhœa	59	2	213	13	20 ·861	6 ·103
	Dysenteria	80	7				
	Enteritis	6	1				
	Colica	16	0				
	Dyspepsia	6	0				
	Obstipatio	7	0				
	Hœmorrhois	6	0				
	Splenitis	2	0				
	Peritonitis	3	1				
	Hepatitis	28	2				
Diseases of the lungs	Catarrhus	21	0	34	2	3 ·330	5 ·882
	Hœmoptysis	1	0				
	Asthma	8	0				
	Phthisis pulmonalis	4	2				
Diseases of the brain.	Apoplexia	1	0	9	0	0 ·881	0 ·000
	Epilepsia	4	0				
	Paralysis	1	0				
	Hysteria	3	0				
Eruptive fevers	Variola	3	0	6	0	0 ·587	0 ·000
	Varicella	2	0				
	Erysipelas	1	0				
	Anasarca	7	2	7	2	0 ·685	28 ·571
	Rheumatismus	19	0	19	0	1 ·860	0 ·000
Peculiar diseases	Menorrhagia	1	0	72	2	7 ·051	2 ·777
	Parturitio	69	0				
	Febris puerp.	2	2				
	Morbi oculorum	171	0	171	0	16 ·758	0 ·000
	„ cutis	2	0	2	0	0 ·195	0 ·000
	Other diseases	164	2	164	2	16 ·062	1 ·219
	Tota	1186	38	1186	38	116 ·160	3 ·204

NOTE.—Per centage of deaths to strength 3·721

CEDED DISTRICTS.

No. 28.—*Table exhibiting the sickness and mortality amongst the CHILDREN of H. M.'s regiments at Bellary, during the same period of ten years, from* 1829 *to* 1838 *inclusive.*

Aggregate strength. 1704. CLASSES.	DISEASES.	Admissions.	Deaths.	Total admissions from each class.	Total deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers	Febris intermit quot	146	4	770	31	45 ·187	4 ·025
	„ remittens	9	3				
	„ com: continua	615	24				
	Cholera	27	15	27	15	1 ·584	55 ·555
Diseases of the abdominal viscera	Diarrhœa	91	15	203	38	11 ·913	18 ·719
	Dysenteria	87	17				
	Enteritis	3	3				
	Obstipatio	4	0				
	Colica	4	0				
	Marasmus	1	1				
	Hepatitis	13	2				
Diseases of the Lungs	Cynanche	4	2	22	6	1 ·291	27 ·272
	Catarrhus	17	3				
	Pneumonia	1	1				
Diseases of the Brain	Convulsio	7	6	14	8	0 ·820	57 ·142
	Epilepsia	4	0				
	Hydrocephalus	1	1				
	Tetanus	1	0				
	Chorea	1	1				
Eruptive fevers	Variola	21	3	34	5	1 ·905	14 ·705
	Varicella	9	0				
	Rubeola	1	0				
	Erysipelas	3	2				
	Dentitio	6	2	35	2	2 ·054	5 ·714
	Vermes	29	0				
	Morbi oculorum	915	0	915	0	53 ·697	0 ·000
	„ cutis	22	0	22	0	1 ·291	0 ·000
	Other diseases	175	7	175	7	10 ·269	4 ·000
	Total	2217	112	2217	112	130 ·105	5 ·051

NOTE.—Per centage of deaths to strength 6·572.

CEDED DISTRICTS.

Table shewing the Number of Persons successfully vaccinated from 1829 to 1838 inclusive.

DISTRICT OR STATIONS.	Class and sex of Patients.						Total Vaccinated.	
	Christians.		Hindoos.		Mahomedans.			
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Bellary	1,061	875	7,344	6,589	1,477	1,087	9,882	8,551
Cuddapah	456	397	7,436	6,394	1,459	1,223	9,351	8,014
Grand Total..	1,517	1,272	14,780	12,983	2,936	2,310	19,233	16,565

Number of Vaccinators in each District.

	1st Class Vaccinators.	2nd Class Vaccinators.
Bellary	1	3
Cuddapah	1	3
Total....	2	6

The number vaccinated in this division during these ten years is 35,798; the whole expense incurred, amounts to Rupees 19,488 which gives an average of about Rupees 54, 8, per hundred, or 13 pence per head in English money.

APPENDIX.

Statement shewing the extent of accommodation, Dietary, Allowances for Clothing, Hours of Labour &c. in the Jails throughout the Ceded Districts.

JAIL OF	Number of prisoners the prison is capable of containing in separate sleeping cells.	Number of prisoners the prison is capable of containing where more than one prisoner sleeps in one cell.	Dietary or other weekly allowance and weekly cost per head.	Allowance of clothing and bedding and cost per head.	Description of employment and hard labour.	Hours of labour and of exercise.
BELLARY.	The Jail is not constructed on the principle of affording separate sleeping cells to the Prisoners. There are about 43 cells in all in the Jail.	The cells set apart for the native convicts are calculated to contain 596 at the rate of 2 feet in breadth, and 7 in length for each man; in addition to the above, a European prisoner has 1 room 14 feet square to himself, 26 female prisoners have two, two similar rooms, and 15 civil prisoners or debtors, have 3 rooms of the same size, in separate parts of the Jail.	Each prisoner is allowed 1 seer or 2 lb weight of cholum, the great millet or cumboo, or Raywat, or of Natcheny, at his option; or he may take half of his allowance in one grain, and half in another, and change the description of grain as often as he pleases. The grain is issued in the husk, and the prisoners beat, clean and cook it themselves after they return from work. Each prisoner is allowed weekly. 7 seers of gawaree..... 0 2 4 To purchase firewood chilleys, tamarind salt &c. 0 2 4 Total per hd. Rs. 0 4 8	The annual allowance of clothing and bedding is as follows. 1 Cumbly..... 0 12 0 2 Pieces of cloth, 5 cubits each..... 0 8 0 Total Rupees.. 1 4 0	On public roads, bridges &c. spinning cotton, and woollen thread, and weaving cloths and cumblies.	From 6 to 10 A. M. and from 1 before 11 to 4 P. M. The convicts leave the jail at 6 A. M. and give over work at 3 P. M. or soon after, according to distance, to enable them to reach the jail at 4 P. M.
CUDDAPAH.	The prisoners are kept in separate wards not in separate cells.	600.	The weekly cost of food per head is Ans. 3 and pice 6 prisoners employed at paid labour receive 80 Rs. weight of soaree per diem; those waiting trial receive 70 Rupees weight, of those in hospital 30 Rs. weight each prisoner also receives 4 pice to purchase firewood and condiments.	The prisoners are allowed each 1 cumbly a year, and ½ of a piece of coarse cloth every 6 months, the price of the cumbly is generally 6 Annas, and ½ of a piece of cloth, costs 4 Annas 8 pice.	The prisoners are chiefly employed in repairing roads, and making paper.	The hours of labour are from 7 A. M. to 12. and from 1 P. M. to 5. This includes the time in walking to and from the spot, at which their labour may be required, the intermediate hour of rest is taken at the place of labour.

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Meteorological Observations, made at Bellary in 1841 *and* 1842.

	Barometer.			Thermometer.				Amount of rain.	Number of days on which rain has fallen.	Prevailing Winds.	
	Mean Maxim.	Mean Minim.	General Mean.	Mean Maxim.	Mean Minim.	General Mean.	Mean daily rang.	Inches.	Days.	A. M.	P. M.
January 1841	28 ·70	28 ·66	28 ·68	84 ·2	73 ·6	78 ·9	10 ·5	0	0	S. E.	E.
February „	28 ·72	28 ·68	28 ·70	86 ·8	74 ·7	80 ·8	12 ·03	0·02	1	S. E.	E.
March „	28 ·63	28 ·58	28 ·60	92	83	87	9	0·03	2	N. W.	N. W.
April „	28 ·62	28 ·56	28 ·59	94 ·2	86 ·2	90 ·2	8	4·19	8	N. W.	N. W. to E.
May „	28 ·57	28 ·50	28 ·53	92 ·5	83 ·9	88 ·2	8 ·6	·09	4	N. W.	N. W.
June „	28 ·49	28 ·43	28 ·46	88	81 ·7	84 ·9	6 ·3	4·40	12	W.	W.
July „	28 ·48	28 ·43	28 ·45	85 ·7	81 ·0	83 ·3	4 ·6	1·17	10	W.	W. S. W.
August „	28 ·56	28 ·49	28 ·52	83	79	81 ·5	4 ·3	6·10	14	W.	W.
September „	28 ·53	28 ·47	28 ·50	83 ·8	78 ·5	81 ·2	5 ·2	4·61	11	N. W.	N. W.
October „	28 ·66	28 ·55	28 ·60	83 ·5	77 ·6	80 ·5	5 ·9	5·38	14	N. W.	N. E.
November „	28 ·64	28 ·59	28 ·61	82 ·7	75	78 ·8	7 ·7	0·39	5	S. E.	E.
December „	28 ·65	28 ·59	28 ·62	81 ·8	73 ·1	77 ·3	8 ·7	0·02	2	N. W.	N. E.
January 1842	28 ·71	28 ·67	28 ·69	84 ·4	74 ·1	79 ·2	10 ·2	0·7	2	S. E.	E.
February „	28 ·69	28 ·63	28 ·66	88 ·5	76 ·9	82 ·7	11 ·6	0	0	S. E.	E.
March „	28 ·68	28 ·60	28 ·64	90 ·7	81 ·5	86 ·9	9 ·2	0	0	S. E.	S. E. Variable.
April „	28 ·63	28 ·56	28 ·59	98 ·9	86 ·6	92 ·1	12 ·2	0·2	2	N. W.	N. W.
May „	28 ·58	28 ·51	28 ·54	92 ·8	82 ·7	87 ·7	10 ·1	1·89	6	from S.W. to N.W.	from S.W. to N.W.
June „	28 ·51	28 ·47	28 ·49	86 ·8	80 ·1	83 ·4	6 ·6	2·75	10	N. W.	N. W.
July „	28 ·54	28 ·49	28 ·51	85	79	82 ·0	6 ·1	0·60	7	W.	S. W.
August „	28 ·55	28 ·51	28 ·53	84 ·1	77 ·5	80 ·8	6 ·6	1·74	16	W.	W.
September „	28 ·59	28 ·53	28 ·56	83 ·3	78 ·0	80 ·6	5 ·2	8·44	7	N. W.	N. W.
October „	28 ·68	28 ·62	28 ·65	84 ·1	78 ·8	81 ·5	5 ·3	2·21	8	N. W.	N. E. Variable.
November „	28 ·73	28 ·72	28 ·72	82 ·8	76 ·2	79 ·5	6 ·6	8	5	S. E.	E.
December „	28 ·79	28 ·76	28 ·77	81 ·5	73 ·6	77 ·5	7 ·8	0	0	E	E.

Statistical table for the district of Bellary, for the year 1836.

NAMES OF TALOOKS.	Extent and Population.								
	Extent in square miles.	Number of Samuts.	Do. of Mozahs.	Do. of Muzrahs.	Total of villages, and Hamlets.	Total number of fields as registered at the survey.	Number of houses.	Do. of families.	Total of persons.
1	2	3	4	5	6	7	8	9	10
Adwarie	924	18	214	43	257	41286	22139	23521	105882
Goolem	720	6	106	6	112	17713	9524	1013›	45081
Panchapollem	1200	15	196	124	320	46795	20936	21718	95036
Gooty	920	14	127	91	218	27985	16381	17720	79873
Yadakee	380	10	66	97	163	24084	10543	11562	57601
Raidroog	1012	20	167	75	242	24791	14475	15138	67287
Tadputtree	448	4	75	94	169	26575	10919	12131	61710
Aruntapoor	792	11	125	162	287	33095	15189	16623	75730
Pengondah	660	8	127	233	360	37430	15096	15743	68330
Kodecondah	396	6	98	282	380	32164	10514	11036	50638
Muddugserah	450	13	159	171	330	17033	11537	11792	52306
Druwaverum	1300	16	196	172	368	33938	16957	18066	83470
Bellary	936	10	168	15	183	25769	19967	20881	89352
Kumplee	330	10	99	36	135	13651	9062	9287	33249
Hurpunphully	840	13	245	14	259	34345	12334	12472	45949
Kodleghee	1028	17	413	36	449	44122	18072	18313	70791
Howinhudgaty	720	12	177	44	221	24662	12592	12757	48223
Total	13056	203	2758	1695	4453	505138	246267	259198	1129907

Statistical table continued.

Number and description of Villages.

		Fusly 1245. A. D. 1835.			Fusly 1246. A. D. 1836.		
		Mozahs.	Mussahs.	Total.	Mozahs.	Mussahs.	Total.
Amanie	Government villages	2416	1656	4072	2121	1655	4076
	Resumed Jogheer	9	3	12	9	3	12
	Shrotriums	162	17	179	162	17	179
	Total	2587	1676	4263	2592	1675	4267
Fixed Jodee		22	2	24	22	2	24
Rented		0	0	0	0	0	0
Permanently settled		0	0	0	0	0	0
Surva Maunium		53	17	70	53	17	70
		75	19	94	75	19	94
Pesheush		2662	1695	4357	2667	1694	4361
		0	0	0	0	0	0
Total		2662	1695	4357	2667	1694	4361

Sources of Irrigation.

	Fusly 1246 A. D. 1836.		
	In repair.	Out of repair.	Total.
Cultivation Tanks	1243	158	1401
Channels from Rivers	235	29	264
Do. Do. springs	1493	253	1746
Wells for Circar land	14992	2683	17675
Emaum Wells	4815	0	4815
Dams across Rivers	45	1	46
Do. Do. lesser streams	238	47	285
Total	23060	3116	26182

Number of Cultivators and Puttahs.

	Fusly 1245 A. D. 1836.		
	Ryots.	Puttahs	Ploughs
Sinla Ryots	68819	68819	82234
Payakaries	10812	10812	
Total holders of individual puttahs	79631	79631	
Goomchee	0	5409	
Total	79631	85040	82234

Population ascertained in Fusly 1242.

Number of Houses.	Number of Families.	Total of Persons. Males.	Females.	Total.
246.267	259.198	591.290	538.617	11.29.907

Cattle and Sheep.

	Total	Detail. Belonging to Cultivators.	Belonging to other persons.
Cows	250058		
Bullocks	282858	375360	415732
She Buffaloes	251294		
He Do.	50882		
Sheep and Goats	1295857	674117	531540
Total	19.967.49	1049477	947272

Statement of the Cultivation.

		Acres.		
		A.	L.	A.
Total dry Garden & Wet.	Dry Land	1815069	27	3
	Garden Land	33840	14	3
	Wet Land	113873	38	8
	Total	1961783	38	14

Statistical table, Cuddapah Districts for 1836.

Divisions.	Names of the Talooks.	Wet						Capable of cultivation.					
		Circar land.			Enam land.			Total Circar, Dry Garden, Wet Poonasa & Turry Bagayet.			Enam dry, Garden, wet Poonasa and Turry Bagyyet.		
Principal Collectors.	Jummulmudgoo	58222	12	8	38505	1	8	297329	12	5	158018	12	0
	Doo,oor	50308	11	11	39557	1	9	293025	8	7	188660	9	5
	Kovelakoontha	36993	8	11	33608	1	11	255913	1	11	184381	9	7
	Chitwail	111461	13	10	95960	15	8	352333	5	10	182121	8	9
	Sidhout	58182	12	7	29676	11	3	266952	3	5	75583	4	0
	Chennoor	55636	14	4	31665	4	8	184248	12	6	101634	4	10
	Kumalapoor	56912	6	2	34576	7	1	192137	7	10	99519	3	3
	Goorramcondah	184569	14	2	143584	4	7	345169	14	0	180295	5	9
	Muddenpully	137673	0	2	89102	4	8	273609	7	9	114755	4	7
	Poolevendlah	138452	4	2	61973	9	10	461866	13	5	150182	8	9
	Roychoty	126750	7	8	93019	9	15	313620	1	8	137201	0	2
	Total	1015664	10	4	676779	8	6	3276205	4	4	1566413	6	1
Sub-Collectors.	Cumbum	67316	15	1	49152	6	0	285907	1	5	171306	12	3
	Doopaud	34632	14	5	26712	8	6	417130	1	9	157608	7	8
	Budwaib	67951	6	2	61248	14	7	267226	1	10	117617	2	0
	Total	169902	3	8	139433	13	1	970263	5	0	446533	5	11
	Grand Total	1185566	14	0	816163	5	7	4246468	9	4	2012975	12	0
	Poonganoor	117242	15	11	109755	1	1	317532	2	10	206123	12	8
	Bunganpully	0	0	0	0	0	0	0	0	0	0	0	0
	Grand total including Pooganoor and Bunganapully	1302809	13	11	925918	6	8	4564000	12	2	2219098	8	8

Statistical table of the Cuddapah District, for the year 1836.

	Number of the Villages.		
	Mowzahs.	Muzzrahs	Total.
Aumanie. { Govt. Villages..	1594	8348	9942
Aumanie. { Anna Shrotrium	123	259	382
Total..	1717	8607	10324
Fixed Jodie.....	69	214	283
Jodie.....	3	1	4
Rented.....	0	0	0
Permanently settled.....	0	0	0
Jagheer and Surva Maunieums.....	21	65	86
Moturpha.....	2	0	2
Total..	95	280	375
do...	1812	8887	10699
Paishcush.....	0	0	0
Grand Total	1812	8887	10699
Particulars of the above total			
Total of 14 Talooks.....	1741	8191	9933
Paishcush of Poonganor....	69	696	764
Total..	1812	8887	10699
Aumanie of Banganpully Jagheer.....	59	14	72
Grand Total..	1871	8901	10771

Sources of Irrigation.	In Repair.	Out of Repair.	Total.
Tanks.....	7340	1290	8630
Channels as follows			
do from Pernah river...	14	5	19
do Papugin.....	84	12	96
do Gondikah.....	3	0	3
do Bahoodah.....	137	34	171
do Sagara	5	1	6
do Chittravahti...	14	0	14
do Paularoo.....	4	0	4
do Jumpala	4	0	4
do Coomoodrooty.	1	0	1
do Jooroonady....	0	1	1
do Pinchanuddy..	77	29	106
do Maundivya neddy	76	13	89
do Kowndaniah..	6	0	6
do Arjoonah.....	23	3	26
do Gargaya.	1	0	1
Total..	419	98	547
Channels from Springs...	927	134	106
	176	232	160
Wells.....	5628	7869	6411
Annicut.....	98	29	127
Total...	65055	9420	7177

Population.			
Number of Houses.	Persons.		
	Male.	Female.	Total.
2,21,248	5,67,228	5,14,033	10,81 261

	Number of Cultivators and Puttahs.		
	Ryots.	Puttahs	Ploughs
Stullah ryots.....	92840	91815	74776½
Payakaries.....	17921	17857	0
Gonchee.....	0	1279	0
	110761	110951	74776½
Jodee ryots.....	13322	1229	0
Grand Total..	124083	112180	74776½

Detail.			
Cattle and Sheep	Total.	Belonging to the Cultivators.	Belonging to others.
Cows.....	1,81,704	1,39,93[illegible]	41,773
Bullocks.....	2,19,233	1,80,070	39,163
She Buffaloes....	1,35,023	1,04,382	30,641
He ——,,——....	24,122	17,11[illegible]	7,009
Sheep and Goats.	7,94,732	5,28,257	2,66,475
Total	13,54,814	9,69,753	3,85,061

REPORT

ON

THE MEDICAL TOPOGRAPHY AND STATISTICS

OF

COORG.

COMPILED FROM THE RECORDS

OF THE

MEDICAL BOARD OFFICE.

PUBLISHED BY ORDER OF GOVERNMENT.

MADRAS:

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1844.

COORG.

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COORG.

Situation, boundaries & extent. The principality of Coorg, or *Kodoogoo* as it is called by the natives, is situated in the line of the western ghauts, between latitude 12°, and 12° 52′ North, and longitude 75° 30′, and 76° 10′ East; its dimensions are, length 58 miles, and greatest breadth 25 miles; it however varies in breadth considerably, and on a rough computation, its surface may be stated to be about 1420 square miles. It is bounded on the north and east by Mysore, on the south by Wynaad, and on the west by Malabar and South Canara, which are interposed between it and the sea; its distance from which is in most places about 45 miles. It is strictly speaking a mountain region, the lowest part being elevated not less than 3,000 feet above the sea.

General description of the country. The entire country consists of a succession of lofty narrow ridges having valleys of various extent between them, the ridges, lie parallel to each other, commencing in general with a steep abutment to the westward, and running in the general direction of the western ghauts, viz. from north-west to south-east, until they terminate in the plains of Mysore and Wynaad; of these numerous ridges the following are the most remarkable.

The first to the north-ward rises above the Bizlee ghaut, and terminates at the Cauvery, near Ramasamy Conawah, and is of no great elevation; it separates the districts of Yellooserza-shee-mee to the north, from the rest of Coorg.

Next to this, with the table land of Somwarpett intervening, is a ridge, the western extremity of which commences by a remarkable bluff peak of considerable elevation, called Poopayherry or Soobramuny, well known as a land mark; and which is regarded with superstitious veneration, the natives of the country considering it unlucky to ascend it, ex-

cept as a penance to wipe away sin. The scenery round its base is bold, rocky and grand, and towards Somwarpett, it becomes exceedingly picturesque, forming a succession of beautiful grassy downs, open glades, and clumps of forest trees, resembling the finest park scenery in Europe.

The next ridge in succession has three rather marked rocky peaks, the sides of which slope abruptly to the north and south, into two deep valleys, through which run the branches of the Haringhee river; the scenery here is also very pleasing.

After this comes the table land of Merkara, which is terminated on the south by a sharp declivity of 5 or 600 feet, forming the northern boundary of the great valley between Merkara and Nakanaad; it is about 18 miles in length by 13 in breadth, and consists of a succession of low narrow ridges, with fertile valleys interposed; the lowest, being nearly in the centre, forms the bed of the river Cauvery. At the north-west angle of this valley there is a break in the line of ghauts, forming what is called the Sumpajee valley, which leads by a gradual slope into the low country. The southern termination of the valley however, becomes abrupt, a ridge in this direction rising suddenly to the height of about 1000 feet; and on the west it plunges still more suddenly into Malabar, by a fall of between 4 and 5000 feet. It presents sundry peaks the most remarable of which is Tadiandamole, the highest in Coorg.

A continuation of the valley to the south-east, leads into the talook of Kiggutnaad, which is of considerable extent, but much overgrown with jungle; and further to the south-east rise the Brummagherry mountains, forming the boundary of the country in this direction; they are of considerable elevation, covered with forest trees, and abound in game; like the other mountains of Coorg, the ridge on the top is very narrow.

The general aspect of the country varies considerably in the different talooks. In the vicinity of Somwarpett, the hills are gently rounded, alternating with sloping glades, inter-

spersed with clumps of forest trees; near Merkara the hills are closer together, and more abrupt, the ravines deeper, and more wild, and the jungle in the hollows much thicker.

South of Merkara the country appears covered with wood, the only naked spots being the narrow cultivated valleys between the ridges; on descending into it however, it is found to contain numerous open spaces, the woods being neither dense, nor lofty. Kiggutnaad is thickly wooded, and the whole eastern frontier of the country bordered with jungle more or less dense, varying in breadth from 8, to 15 miles, and communicating with the jungles of Wynaad, and Mysore.

The scenery along the ridge of the ghauts to the westward is very beautiful, and though less rocky and grand than that of the Neilgherries, it is bold and varied in a high degree, the vegetation being of the richest description, and the forest trees of magnificent growth.

The valleys between the ridges, though varying in extent and relative depth, from having the same *general* direction,—i. e. from north-west to south-east,—as the monsoon winds, the temperature of the country is thereby considerably moderated, and rendered equable.

Cuddinegs. or Breastworks.

A remarkable feature of the country, and which attracts the attention of the most casual observer, is the number and extent of the *Cuddinegs,* or breastworks, which surround and intersect it in every direction. Their total linear extent,—being in many places, double, triple or quadruple—cannot be short of 5 or 600 miles; and when it is stated, that they are generally from 15 to 25 feet high, with a ditch in front of 10 feet deep, by 8, or 10 wide, some idea may be formed of the labour bestowed in their formation. The natives are entirely ignorant of the period of their construction, and of the purposes for which they were intended, generally attributing them to the *Pandeoos* or sons of Siva. That they are the works of a very remote antiquity is evident from the loss of all tradition regarding their uses, as well as from the more unequivocal testimony of enormous trees, probably the

growth of ages, which are found springing out of the walls. No satisfactory reason for their construction has yet been assigned; defence could not have been the only object, as they face one another in certain places, and in others, three or four ranges are found directly behind each other.

Subjoined are the elevations above the sea, of some of the more remarkable points in Coorg.

Poopagherry	Feet	5,682
Tadiandemole near Nakanah	„	5,781
Merkara (B. W.)	„	4,506
Nakanaad palace (B. W.)	„	3,797
Soorlaby, northern range (B. W.)	„	4,527
Bittatoor table land, (W. S. W. of Merkara) (B. W.)	„	4,824
Veerajunderpett palace (B. W.)	„	3,399
Highest point of great road from Merkara to Frazerpett (L.)	„	4,781
3 mile stone Do. (L.)	„	4,500
Bhoeekerry hill Do. (L.)	„	4,500
Frazerpett Do. (L.)	„	3,200
Coloor Betta (near Frazerpett) (L.)	„	4,500

Rivers

The principal river of Coorg is the Cauvery, by means of which and its tributaries, nearly four-fifths of the country is drained. The only river of considerable size flowing to the westward, is the Burrepollay, which rises in Kiggutnaad, and descending abruptly through a series of deep and rocky ravines, in one of which it forms a superb cascade 2 or 300 feet high, flows along the base of the hills, by the Huggala ghaut, where it is known as the stony river, and disembogues itself into the sea a few miles north of Cannanore.

The Cauvery rises near the top of a hill, on the very verge of the western ghauts, and descending through the great valley between Merkara, and Nakanaad, makes a sudden turn to the north, and flows for 20 or 30 miles along the

(B. W.) ascertained by boiling water, (L.) by levels taken in constructing the new road.

eastern frontier, receiving in its course several large tributaries, the principal of which is the Soornauretty, or Haringhee, which drains the northern half of the country, and enters the Cauvery between Frazerpett and Ramasamy Conawah. Another large tributary of the Cauvery is the Litchman-tierth, which rises at the foot of the Brummagherries, flows north-east into Mysore, and joins the Cauvery close to Hoonsoor.

The Cauvery is not rapid in any part of its course through Coorg, and its current is in general tranquil, except at a few places where it traverses beds of granite rock; it is fordable at almost all points in the dry season, but during the monsoon at Frazerpett, where it is 225 feet wide, it rises to the height of from 20, to 30 feet.

Morasses. There are no lakes in any part of Coorg, and but few morasses or bogs, except on the site of deserted rice fields, from which however no noxious exhalations appear to arise.

Climate. The temperature of Coorg is moderate and equable, the daily range of the thermometer within doors, not exceeding 6° or 8°, often not more than 2°; the thermometer seldom rises higher than 74°, or falls below 60°, in the open air. The range is a little higher during the dry season, when the daily extremes are from 52° or 53°, to 68° or 70°; the annual extremes are probably 52°, and 82°.

Thermometric ranges.

Barometrical observations. The maximum height of the barometer occurs during the dry season, when the mercury stands at 26.220, and the lowest in July, during the monsoon, when it falls to 25°. 912. The greatest daily range observed has been, 076′; the mean daily range, which is very regular being 050. The diurnal maximum occurs at 10 A. M. and the minimum at 5 P. M., with such regularity, that errors in the supposed time, have often been detected by reference to the barometer. This instrument however offers no indication of approaching changes of weather, nor has it been observed to be influenced by the lunar phases.

Hygrometer. The hygrometrical state of the atmosphere, during half the year, is that of extreme moisture, closely approaching to saturation. During the hot season it is occasionally very dry, and sometimes undergoes most remarkable fluctuations without evident cause, and without any perceptible difference either to the eye, or to the feelings.

Detailed observations on climate. A few detailed observations on the climate, at different seasons of the year, are here given.

The months of January and February are cold, and excessively dry, the range of temperature being from 53°, to 70°, or 72°; the mornings and evenings are to the feelings very cold, while the heat of the sun, in the middle of the day, is tempered by a constant cool breeze, from the north-east, which frequently blows with such violence, as to raise clouds of dust, and become unpleasant.

In March, the cold of the nights becomes less sensible, and the days are warmer, while the wind is less violent, the air still continues in general dry, but fluctuates considerably in this respect.

April and May are usually very pleasant months, the heat of the day which begins to be oppressive out of doors, being tempered by frequent heavy showers, and thunder storms; occasionally, though rarely, the air is close, but the nights are almost always cool.

In June, the monsoon sets in, and at the commencement is seldom violent, but about the end of the month the rain frequently falls in torrents. Between the 22d and 27th of June 1835, there fell twenty seven inches of rain, nearly equal to the aggregate annual fall in England; rain continues during July, August and September, the air becomes loaded with moisture, the sun is seldom seen; and when it ceases during short intervals, a dense fog usually prevails. The temperature at this season is wonderfully equable, the extremes of the thermometer in the open air, being 56°, and 65°.

In October, an interval of bright and beautiful weather generally occurs, rendered the more delightful by contrast,

and by the intense green of the luxuriant vegetation; about the commencement of the month the wind sets in from the north-east, and when strong, is piercingly cold.

November is an unpleasant month, the weather being blustery, cold and showery, and there are frequent cold heavy fogs.

In December, fogs are prevalent, but towards the end of the month the weather becomes settled, when it is clear and cold, the mornings and evenings being intensely cold to the feelings.

Salubrity of the climate for Europeans.

As respects the very important point of health, there can be no hesitation in stating, that the climate of Coorg appears to be well adapted to the European constitution, provided there exists no tendency to visceral congestion.

In the great majority of Europeans, the equability of the temperature,—the average of which 60°, is that generally considered most favorable to health—the coolness of the nights, and, the advantage of being able to take exercise in the open air at all hours, during a considerable portion of the year, exert a most beneficial influence as regards health, strength and appearance; European children are likewise strong and healthy. No slight proof of the congeniality of the climate for Europeans, is the fact, that dogs of the European breed, thrive remarkably well in Coorg, and are exempt from many diseases common to them even in southern Europe.

To the same cause, equability of temperature, the comparative immunity from rheumatic affections, coughs, colds &c. which is here enjoyed, may be attributed; although the atmosphere is, throughout a great part of the year, loaded with moisture.

Diseases which become aggravated by the climate of Coorg.

Certain complaints such as asthmatic affections, are generally aggravated by a residence in the upper parts of Coorg, and the rarefaction of the air may probably be sufficient to account for this cir-

cumstance; chronic affections of the liver, are also apt to put on a more formidable appearance, partly from checked perspiration, in the damp cold seasons of the year, and the want of exercise during the monsoon; in dysenteric complaints when the tone of the intestinal canal has been much impaired by the disease, great care is necessary to prevent diarrhœa supervening, which is at all times obstinate, and frequently resists every means of cure, unless change of climate is resorted to; Frazerpett is of great advantage in this respect, affording a considerable change, within a short distance.

Effect of climate on Natives of the Country.

Natives of the low country suffer a good deal, on first arriving in Coorg, from fever of the intermittent type and bowel complaints, occasioned in a great measure by their being imperfectly clothed, by sleeping on the ground, and indulging in the use of raw vegetables; on becoming acclimated however, they enjoy as good health as in the most favorable parts of the low country, and strange as it may appear, the monsoon season seems to agree best with them.

A few casualties which have lately occurred, have been principally from congestion of the lungs, always a formidable complaint in natives; the climate appears decidedly inimical, to the cure of cuts, wounds and sores, which are often totally unmanageable, without change of air. This is a peculiarity it is believed of other moist climates of India; such as the coasts of Malabar, Bombay, Aracan, and Tenasserim.

The tables appended contain an abstract of a daily atmospherical register kept with but little intermission, from 1st June 1835, to the 31st May 1837, and though imperfect from unavoidable circumstances, will suffice to give a general idea of the climate. See table at the end of the report.

Geological features of the country.

The geological formation of the country in the vicinity of Merkara, bears a close resemblance to that of the Neilgherries as described by Dr. Benza.* The

* Journal of Madras Asiatic Society No. 13, page 241.

rocks are primitive, consisting mostly of sienite, occasionally traversed by green stone, the whole being covered with a thick cap of lithomargic earth, composed of felspar in various stages of decomposition, the agglutinating basis being argillaceous earth, coloured by oxide of iron. In some places the agglutination is so complete as to form laterite, or soap stone, and the whole is traversed by veins of quartz, and of nearly pure felspar; the latter also occurs totally decomposed, in which state it is commonly called porcelain earth, and is used as a white wash for houses, and for cleaning soldier's belts &c.

The greenstone traverses the sienite at several places to the south of Merkara, but the section is imperfectly seen, it is of a very hard texture and receives a beautiful polish, and is occasionally found with minute crystals of pink felspar interspersed through it, but these disappear in the polishing; the section presents a uniform smooth surface, of a dark-blackish green colour*. The sienite is an admirable building stone, but its hardness renders it too expensive for common use.

Immediately over the lithomargic earth, is a stratum varying greatly in thickness, of rich vegetable mould, resulting from the decomposition of the luxuriant vegetation with which the whole country is clothed, during the greater part of the year; on the edges and slopes of the hills this stratum of earth is comparatively thin, but in the valleys and hollows into which it is washed by the heavy rains, along with a vast quantity of heterogeneous detritus, it accumulates to a great thickness, and forms a soil of great fertility, producing, with very little assistance from manure, returns of from 50, to 80 fold.

Water. Water is in general of good quality, but during the monsoon it is necessarily charged with considerable quantities of silt and mud, washed down from the higher grounds.

* A small slab of this description found in the palace at Merkara, is said to have been used as a mirror; some large blocks (4 feet by 2½ and 6 or 8 inches thick) were made into couches, which at the sale of prize property produced large prices.

Causes of fever and bowel complaints.

The climate in many places, for two months previous to the setting in of the monsoon, when frequent heavy showers fall, is more or less unhealthy,* and fever and bowel complaints prevail to some extent, which the natives attribute to the mixture of the old and new waters as they express it; and there can be no doubt, that the first portions of water which percolate through the ground, after a long period of dry weather, becoming charged with saline particles, and decaying animal or vegetable matter, must be more or less deleterious. Europeans are more in the habit of attributing epidemics to noxious exhalations, but it is difficult to account, on the score of malaria alone, for the season preceding the monsoon being the most unhealthy, in the south of India, while in Candeish, the *terraie* of Bengal &c. the close of the rains is the most sickly season.

The period at which the military suffer most is the dry weather, evidently from exposure to the greater variations of temperature, which occur in that season, and to which their duty as guards and sentries at night subjects them.

Their febrile complaints however never put on the malarious, or intermittent type, and are rarely dangerous except when complicated with pulmonary affections.

Botany of Coorg.

The botany of Coorg is as yet an unexplored field, and would amply repay the attention of a competent observer.

Rice.

Rice which forms the staple article of the country, is of a coarse quality and not esteemed in Mysore or to the eastward, three varieties of it are produced, and the principal market for the surplus which is considerable is Malabar.

Raggy.

Raggy is cultivated in the lower parts of the country, to a considerable extent; in the upper country, it

* Particularly in Kigguinaad, and the jungles on the eastern border of the country where fevers are so prevalent at this season as to be called *Rog* or *Epidemic*. The same is the case in the jungles surrounding the base of the *Neilgherries*.

is confined to patches of ground on the slopes of the hills, from which the jungle has been cleared, and the grass burnt for manure; only one crop is raised, after which the ground is allowed to lie fallow for some years, before being cultivated, when the same process is again repeated.

Tobacco. Tobacco of an inferior sort, is grown in small quantities, as also hemp, ginger and turmeric for domestic uses; coffee grows wild on the eastern border, and might be much improved.

Cardamoms. Cardamoms are found in great abundance and of good quality, in the jungles, along the western slope of the ghauts, and produce a considerable revenue; the wild nut-
Nutmegs. meg is also very common.

Sandal wood. Of the more important productions of the jungles, may be enumerated sandal wood, produced chiefly on the eastern border of the country.

Teak wood &c. Teak wood grows on the malabar side of the ghauts, also chunpunee, blackwood, darcheenee, and many other valuable timber trees.

Cucurbitaceous plants. Cucumbers and most plants of the cucurbitaceous tribe grow luxuriantly, and there is no doubt that almost all European vegetables, and some fruits, might be brought to perfection in various parts of the country.

Domestic animals. Of the domestic animals found in Coorg, the bullock is much the most common; it is of a small breed, and does not thrive in the upper country; the same is the case with sheep; but goats thrive better; horses are only kept by a few people of the higher ranks.

Wild animals. Of the numerous wild animals, the most remarkable is, the elephant, large herds of which are found in all
Elephants. &c. the jungly parts of the country, and they often do much injury to the crops. They are occasionally killed by large

parties of hunters assembled for the purpose, and since a reward for destroying them has been granted, numbers are shot annually by individual sportsmen. They are occasionally caught in pits and tamed, but are considered inferior to those of Ceylon, or Bengal.

Tigers are frequently met with, as are also cheetas and tiger cats; they appear to lose much of their ferocity in this climate, and seldom attack a man unless wounded.

Bears are comparatively rare; they appear to resemble those found on the Neilgherries, but differ from them in one remarkable particular, being exceedingly fierce, and more dreaded by the Coorgites than tigers.

The wild dog *ken-nai, sonakoota,* or *d'hole,* is frequently met with in packs of ten or twelve; they are as large as a greyhound, stronger built, and very fierce, they have been known to attack bullocks.

Several species of martens, polecats and weasels are met with.

The samber or elk is common in the more retired jungles, and the animal is hunted for its flesh, which is esteemed by the natives.

The bison as it is called is common on all the mountain ridges, where it attains to the enormous size of 17 hands high, and upwards.

The muntjak (cervus muntjak, of Cuvier) or jungle sheep, as it is sometimes called, is not uncommon, but is shot with difficulty from its frequenting the thickest coverts; it is distinguished by having canine teeth in the upper jaw, and hair covered bony processes on its skull of about four inches in length, on which the horns are supported, its flesh is much esteemed. The memina, or mouse deer is occasionally seen; its flesh is also considered a delicacy. The cheetul or spotted deer, and wild hog, and large sized hares are found in great

numbers, in the more open parts of the country. The woods are tenanted by troops of monkeys, and squirrels; of the latter there are three or four varieties.

Birds. Of the feathered tribe, the most remarkable are, the wood-cock, which is comparatively rare, and evidently migratory; the snipe, found in considerable numbers, jungle and spur-fowl, several species of cranes; Pigeons are also numerous, including the imperial pigeon, blue pigeon, the green dove a beautiful bird, and the common dove. Falcons and hawks are numerous, as are also one or two descriptions of eagle; wood-peckers exist in great variety, and of the most beautiful plumage. The baceros rhinoceres, or hornbill, of two or three varieties is found common in all parts of the country.

Fish. The Cauvery and its tributaries are well stocked with fish, which do not differ from those found in the rivers in the low country.

Reptiles. Among the reptiles are great numbers of lizards, several species of snakes, two or three of which are venomous. The cobra-de-capelle is not uncommon in the lower parts of the country; a snake of a beautiful pea-green colour with black spots, is found near Frazerpett, which is provided with poison fangs, and is said to be deadly. The bite of a species of snake found in Kiggutnaud is said to produce extensive ulcers, which are difficult to heal; scorpions and centipedes are not common; alligators are occasionally seen in the Cauvery.

The jungle leech must not be omitted to be mentioned, being one of the greatest pests of the country; after the first showers of rain on the setting in of the monsoon, it is impossible to quit the road for any distance without being covered by numbers of minute leeches, about an inch long, and not thicker than a hair, which quickly insinuate themselve under the clothes, and fasten on the skin, their bites often producing great irritation; they disappear again in the dry weather, but even then, the unwary intruder into

shady nooks, if moist and covered with leaves, is often punished for his temerity.

Insects. The entomology of Coorg if explored would doubtless be found rich and interesting. Silk worms are not bred; bees are seen in vast numbers, and a considerable quantity of wild honey and wax are found in the woods.

Roads. Previous to the occupation of the country by the British in 1834, the roads were in a primitive state, wholly impracticable for wheeled carriages, and scarcely less so for bullocks, it having been part of the policy of the Rajahs, to render their country as little accessible as possible, from an idea common to mountaineers in all parts of the world, that the chance of invasion and conquest, was thereby diminished, and which to a certain extent, is undoubtedly true; for the same reason some of the more direct, and practicable lines leading to Merkara the capital were shut up, and travelling by them prohibited.

The only track, which was entitled to the name of a road, commenced at Periapatam, passed through a thick jungle to Veerajunderpett, and led by a very steep pass, known as the Huggala, or Hinghin ghaut to Cannanore; this road was constructed by a party of pioneers, some years ago, but the pass is so steep as to be nearly impracticable for bullocks, or horses, and totally so for any other species of carriage,* and is in fact the worst ghaut in the south of India; the part of the road between Periapatam and the top of the pass, is better constructed, and with little trouble, might be made practicable for carriages; but the ghaut, and the road for eight miles from the foot of it towards Cannanore, is not capable of much improvement. This and the next mentioned road formed the line of advance of the southern column of the attacking army.

From Veerajapett† a cross road leads N. N. W. to Merkara 22 miles; this is also nearly impracticable in the wet sea-

* The declivity is in many places 1 in 3, seldom less than 1 in 4; the Ghaut is nearly 5 miles long.

† 1,100 feet lower than Merkara.

son for bullocks, and totally so at all times, for carriages, passing as it does over the ridges of all the intervening hills. On reaching the base of the table land of Merkara, here about 600 feet high, it ascends by a very steep, but well made road, the declivity of which is 1 in $3\frac{1}{2}$, or 4 feet; an improvement on this line is in contemplation, and partly executed by the superintendent of Coorg, which by following the prolongation of one of the ridges, accomplishes the descent at the rate of 1 in 13 or 14 feet; and effects besides a great saving of distance.

From the bottom of the last mentioned ghaut, or pass from the Merkara table land, branch roads lead to Nakanaad palace, 18 miles, and to Talla Cauvery, the source of the Cauvery, 20 miles; they are of the same description, as the Veerajapett road, exhibiting a contempt for all the acknowledged principles of road making. From Talla Cauvery there is a tolerably easy but very long pass into Malabar, called the Thorakana ghaut.

At Periapatam commences another road, leading through thick jungle to Nunjerajpett, near the Cauvery, and thence to Merkara. This though traversing sundry steep acclivities, and descents, was formerly much the most practicable and frequented way of access, but is now totally disused.

From Merkara westward, a foot path leads to the edge of the table land 12 miles, descends by a very steep pass called the Talnair or Kurrunkall ghaut, 3 miles long, barely practicable for bullocks, and thence through thick jungle to Bellarypett, and by Pootdor to Mangalore; by this line the north-west column of attack was to have advanced, but got no further than Bellary-pett.

A road leading north from Merkara, branches off into one running north-east, by Hallary to Ramasamy Conawah, by which the principal column entered the country; and a second by Jumboor Bucka—at which latter place the north

column was repulsed—Somwarsunta, and Coodlipett, into the Mysore district of Munjerabad.

The whole of these, are in most parts little better than mere foot tracks, full of stones, and ruts, passing over the steepest acclivities, without an attempt to avoid, or render them less steep by zigzags, or turns, and in short in the very rudest state.

Since the occupation of the country by the British, an excellent road has been made by the corps of sappers and miners, from the frontier of Frazerpett,* on the Cauvery,—where it communicates through Periapatam or Betumdapoor, with the great road to Bangalore—as far as Merkara; it is 25 feet wide throughout, and in every respect admirably constructed; the slopes where occuring, rarely exceeding 1 foot in 14 or 15, but are generally much less.

The advantage of a good road in a military point of view, was perhaps never more apparent, than on a late occasion during the insurrection in Canara, where a field battery of foot artillery, with guns, train &c. marched with ease in six hours, from the frontier to Merkara; the force when entering the country in 1834, by nearly the same line, having been four days in performing the distance.

The same line of road is continued from Merkara, by a ghaut called the Soolea or Sumpajee ghaut, into Canara; by an easy slope along the north declivity of the table land, to the head of the Sumpajee valley,—5 miles west south west of Merkara—from whence there is a gradual slope of not more than 1 foot, in 24 or 25, to Soolea; from the latter place to Bellarypett and Mangalore, the country is nearly level. The distance by this road from Bangalore to Cannanore, and Mangalore, is less than by any of the old tappal, or dawk routes; and greatly facilitates the intercourse between the south of Mysore, the whole of Coorg, and the Malabar Coast.†

* 1300 feet lower than Merkara.

† Of the other passes into the country the Peria ghaut in Wynaad, is barely practicable.

Mineral productions. But little is yet known of the mineral productions of the country; the iron and steel used by the natives, are procured from Mysore.

Population. From the subjoined table the population would appear to be considerably on the increase; owing in a great measure to immigration from the neighbouring countries, on account of a preference for the system of government recently introduced into Coorg.

No accurate accounts of the marriages, the numbers living at different ages, or of the relative proportions of Coorgites foreigners, slaves, &c. can be given, partly from the apathy and ignorance, common to all native states, and partly from a fear of exciting the suspicion of the people, if enquiry was to be pushed too far on such subjects. The number of slaves is however supposed to amount to between 10 and 12000, and of foreigners, the estimates have varied, from 1,500, to 3000.

Population of Coorg (Proper) from the Jummabundee Returns for 3 years.

Year.	Coorg.					Other classes.					Grand Total.	Births.	Deaths
	Men.	Women.	Boys.	Girls.	Total.	Men.	Women.	Boys.	Girls.	Total.			
1834——35	3845	4039	3413	2907	14204	10531	13890	8651	7293	43365	57569	*	
1835——36	3602	3717	3255	2704	13271	14533	14599	9034	7542	45709	58987	2323	1675
1836——37	3955	4157	3774	3141	15027	15815	15803	10424	8368	50410	65437	3194	1098
Increase in the last year....	353	440	519	437	1749	1282	1204	1390	826	4701	6450	871	
Decrease.....													577

* No calculation is founded on this year's returns, not being perfectly accurate.

† Part of this increase is from 4354 labourers who have immigrated into the country during last year, the absolute increase is therefore 2,096

From the foregoing table it would appear :

1st.—That the population—exclusive of immigration—has been increasing in the ratio of 3.43 per cent, per annum.

2dly—That the births, exceed the deaths,—on the mean of 2 years—in the ratio, of nearly 2, to 1.

3dly.—That the number of boys exceeds the number of girls, in the ratio of 37, to 31, but in adults, this is reversed, the females, being to the males, as 41, to 39 nearly: the relative ages however not being given, no deduction can be made to account for this circumstance.

4thly.—The proportion of deaths in the years 1835-6, was 1 in 35. and in 1836-7, only about 1 in 60 : the deaths to births in 1835-36 were as 1, to 2 nearly, in 1836-7 as 1, to 3 nearly.

It is impossible to form any idea of the average longevity of the inhabitants, natives having but vague and imperfect notions of dates, they however all agree in stating that men live much longer than women, which they attribute to the early marriages of the latter; that more male children die, than females; and, that mortality among children under one year old is great, which two last statements correspond with similar facts elsewhere.

Towns & Villages. The Coorgites have only three villages, or towns properly so called, Merkara, Somwarpett, and Veerajunderpett; the latter being the largest, and principally inhabited by native christians. The members of each family live together to the number of 20, or 30, or even 60 or 70, and when a family becomes too numerous, an additional dwelling is built in the vicinity of the family abode, which is generally on the side of a hill surrounded by wood, and near their Houses. hereditary fields, to which they are much attached. Their houses are generally substantially built, having thatched roofs, and are kept very clean and comfortable ; those of the better sort, form a hollow square, with a small court in Fuel. the centre. Fuel is abundant in every part of

the country, and upon the whole the people may be said to be in easy circumstances, and are well provided with food, lodging, and raiment; a great equality of feeling prevails among them, and there is but little disparity in point of wealth.

Clothing. Their clothing is in general good, and sufficient; that of the men consists of a turban of white or blue cloth, one or more long gowns, fitting tight round the body and arms, and reaching to the feet when in dishabille, but tucked up as high as the knee when taking exercise, and secured round the waist with a handkerchief or shawl, over which is worn the belt and knife peculiar to the country, and now well known. The gown or coat is usually of thick white cotton stuff,—more rarely blue—with red embroidery on the shoulders; but they prefer broad cloth when able to procure it. The women wear one or more cloths, reaching from the breast, to below the knee; leaving the top of the shoulders naked and they have usually a small white cloth round the head.

Physical appearance of the Natives. The men, as is well known, are a handsome athletic race, usually above the middle height, and almost uniformly well limbed. The women are not so tall in proportion, but stout and well looking, though rather coarse. The complexion of the men varies greatly and the women are comparatively fair.

Agriculture. Agriculture is the universal occupation of both sexes, after labouring all day in heavy rain, during which they are most actively employed, a general practice is, on their return home at night, to wash the entire body with warm water, which they say counteracts the effects of wet, and cold; they are however, not particularly cleanly in their persons.

Amusements. Customs. The principal amusements of the men, are hunting, and shooting; these are followed partly from the necessity of driving away wild animals, who would otherwise destroy their cultivation; and partly from choice. At a parti-

cular season of the year, they hold a solemn dance, from which it is thought unlucky to be absent; the men are the only performers, the women being merely lookers on. It is evidently a species of *pyn-hie*, or war dance, in which there are interludes of single combats, the individuals being armed with a long twig in lieu of a sword, and a shield; the people themselves are quite unable to give any account of the origin of this custom.

A very singular custom exists, which is a sort of community of wives, who are common among the brothers of a family.

On the marriage of an elder brother, his wife is considered the property of all the others, and as the juniors successively take wives, they in turn become common to the rest of the brothers. Some curious particulars connected with this revolting custom, are detailed by Connor. Of its origin little is known but it is said to have been owing to a comparative scarcity of women, in early times, and to have since become sanctioned by custon; they appear to be getting ashamed of it, and, it is accordingly wearing out; it may be mentioned that this custom has tended very much to disseminate the venereal disease; the younger members of the family, who resort occasionally to public women, communicating the disease to the wives of their elder brothers, and thus in succession to the whole family. Until aware of this extraordinary custom, astonishment was excited at frequently finding elderly and respectable people affected with gonorrhœa, and syphilis.

Food. The diet of the people principally consists of rice, seasoned with onions, garlic, turmeric, and the other usual ingredients of curry, and is not a little restricted by the prejudices of caste, beef being the only kind of meat not used; but their economical habits prevent their consuming much animal food, except what is the produce of the chase; and in the selection of game they are not very particular; as they eat the flesh of monkeys, squirrels and various other animals, not used by Europeans.

They have usually four meals in the day; first in the morning at 6 o'clock, and afterwards at 10, A. M., at 2, P. M., and

again at 6 or 7, in the evening; at the latter, the principal meal, milk in various forms, but principally butter-milk, is much used. They are not averse to spirits, and on occasions of feasts consume it in large quantities.

Disease. The most common diseases are fever, dysentery, asthma, venereal, piles, dropsy, jaundice, splenitis, and phthisis.

Fever. Fever is mostly of the intermittent type, and not usually of a severe form; in the lower and jungly parts of the country, before the commencement of the monsoon, it assumes a more formidable character, and frequently proves fatal. When recovery takes place it is often followed by jaundice, or splenitis; patients under these circumstances are sure to suffer a relapse the following season, unless change of air

Dysentery. is resorted to: Dysentery is also common, and often very fatal, especially among children; it likewise prevails most extensively in the season preceding the monsoon.

Phthisis. Phthisis is often met with, and is said usually to occur between the ages of 20 and 40.

Variola. Variola is not unfrequent, and formerly used to be very fatal; but the Rajah many years ago, had all his subjects vaccinated; the means adopted for its dissemination being very simple, pins or needles were dipped in virus, and sent to all parts of the country, with directions for the using them. Since our occupation of the country, care has been taken to keep up vaccination, and death from small pox is comparatively rare.

Scrophula. Scrophula is very common, usually making its appearance at the age of puberty, in the form of swellings in the neck to which ulceration succeeds.

Measels. Measles is common, but not severe; and scarlet fever is altogether unknown.

Rheumatism. Rheumatism is not uncommon, but not very obstinate. Cases of insanity are not unusual; and idiocy is frequent.

Venereal diseases. Venereal disease—both gonorrhœa and syphilis is very common, owing to the circumstances before mentioned, and to the loose state of morality, as regards the intercourse of the sexes. Secondary symptoms are of frequent occurrence, and very obstinate; the people are unacquainted with any remedies for its cure, or alleviation except some vegetables.

Primary syphilitic ulcers approach more nearly to the character of the true Hunterian chancre, than is often seen in more civilized societies; the people maintain that the disease was unknown in the country, in any shape, previous to the occupation of it by the Honorable Company's troops, and give as a reason, that they were not allowed to quit the country; and that strangers were prohibited from entering it.

Ulcers &c. Ulcers, and cutaneous diseases are both common and difficult of cure.

Diseases of women. The only diseases peculiar to women, are irregularities of the catamenial discharge generally caused by exposure to cold; and they are said to suffer occasionally from dropsical swellings during pregnancy, which produce abortion about the 6th month. Women are considered to be less healthy, and shorter lived than men, attributed to the community of wives above mentioned; as well as to early marriages. The great mortality among children below one year old, is chiefly from bowel complaints, but no diseases are stated to be peculiar to them.

State of Medical science. Medicine is in a very rude and simple state; there are no hakeems or persons who practice it exclusively, and most if not all diseases are attributed to the influence of an evil eye, or the anger of the gods*; curative measures principally consists in prayers, incantations, and offerings to idols.

No prejudice whatever exists against European medicines, or practice, and people resort readily to the medical officer at Merkara, for advice or assistance; like all natives however,

* The natives rarely admit, that any place is unhealthy; but they say that occasionally, the devil occasions fever of a malignant description in certain places.

they want patience to submit to any lengthened course of treatment, and generally return to their homes, if a cure is not effected in a few days.

Materia medica. The materia medica though simple, and confined to plants found in the jungles, is not without efficacy in mild cases, particularly of a local description.

The following is a list of their chief "remedies."

Name.	Part used.	Medical effects.
Hittee Beejah....	Kernel of fruit....	In small doses of 5 or 10 grains, astringent febrifuge; in large doses narcotic and poisonous.
Thoomba Geedoh..	Expressed juice of the leaves.....	Expectorant; for coughs.
Kodin Kittolee...	do.	Febrifuge, diaphoretic, (ordinary fever.)
Nassoomannee Baroo..... ..	do.	Febrifuge, (continued fever.)
Seepawaruthoo Sigooroo	do.	Astringent, tonic, (chronic dysentery.)
Poda Bellee	do.	Sedative, antispasmodic, (in colic.)
Mavin Beejah....	Fruit, bark and root.....	Astringent, tonic, vermifuge (in dysentery and worms.)
Gajeegatha Gada...	Juice of leaves.....	Diuretic (in dropsy.)
*Numaree Baroo..	Root.....	Febrifuge, diaphoretic (fever and venereal disease.)
Kareemartha Sagooroo	Juice of leaves.....	Purgative.
Sakee Suppoo....	do.	Diuretic (in dropsy.)
Thasula Hoo.....	Juice of leaves internally and externally.	Cooling, demulcent, purgative (in ophthalmia and local inflammations.)
Dalinba Sigooroo..	Do. internally....	Refrigerant, stomachic.
Havin Sapoo. ...	do.	Refrigerant (in eruptive diseases.)
†Haleela Beejah..	Seeds.	Purgative.

Diseases of cattle. Cattle as before observed do not thrive in Coorg; horses are subject in the wet weather, to a disease of the throat resembling laryngitis, which frequently proves fatal in a few hours, even when very active measures are resorted to. The best remedy is bleeding ad deliquium, and *firing*

* Periploca Indica or country Sarsaparilla, a valuable substitute for the more expensive American article.

† Probably the same as the hirleela-siyah, a common and very excellent purgative, used in Persia.

the throat*. The Rajah was always in the habit of sending his horses to the frontiers during the monsoon, and it is said, that even his elephants suffered if kept at Merkara.

Bullocks are subject to the same disease, but in them it comes on more insidiously, and though equally fatal, does not run its course so rapidly as in horses; it generally commences with purging, which is succeeded by swelling of the throat; occasionally when the animal seems about to recover, ulcers form on the legs, and the hoofs drop off. No cure is known for this complaint, which occurs at all seasons of the year.

It seems difficult to assign a cause for the uncongeniality of the climate to these aninals; the damp atmosphere alone does not satisfactorily account for it, as the climate of many countries in Europe—England for example—famous for the breed of cattle, horses and sheep, is as damp as that of Coorg, during a portion of the year. Cattle are fed exclusively on dry straw, and grass.

No information has been obtained as to the diseases of plants used as food, either by the people, or the cattle, with the exception of rice, which is subject to blight in particular situations, but is never used as food afterwards.

MERKARA.

Situation. Merkara, or Muddykeree, as it is pronounced by the natives, is the modern capital of Coorg, the fort of

NOTE.—It should have been stated under the head of "Vegetable productions" that an attempt to introduce the tea plant, by seedlings from Calcutta, totally failed, all the plants having withered. This may probably have been owing to want of experience in the cultivators, as a plant given to Colonel Crewe on the Neilgerries, and afterwards transplanted to Manantoddy, and from thence to Merkara, was healthy and covered with blossoms in April 1837.

* Several valuable horses belonging to officers of the 36th Regiment N. I. having died of this complaint at Merkara in 1834, it has since been the invariable custom to send these animals to Frazerpett or Hoonsoor, in the monsoon. A fine arab brought from Tabreez in Persia which had been in the possession of an officer six years, without a day's illness, was carried off by the disease; he was attacked at 7 in the morning, and died at 9 at night, notwithstanding bleeding, blistering, &c., the attack commenced with wheezing, and difficulty of breathing attended with swelling of the throat which gradually increased, (without however producing any febrile symptoms) till it terminated in suffocation.

which was built by Typoo Sultan A. D. 1782; the ancient capital of the province having been the town of Hallary, five miles north-east of Merkara: it is distant from Madras viâ Seringapatam, and Bangalore, 352 miles, from Bangalore 145, from Mysore 70, and from Cananore 68 miles.

Surrounding country &c. The hills around Merkara, arise abruptly from the surrounding country, forming an oblong table land, at the south-east angle of which is situated Merkara; the fort being built on the levelled summit of a small isolated hill.

On the east and north, the hills have a gentle declivity, their sides being clothed with wood; but on the south they are abrupt, precipitous and nearly naked, descending to the low or Southern division of Coorg, to the depth of from 4 to 600 feet.

On the west, the table land is elevated about 3,000 feet above the low country of Umrsoolea. A remarkable peculiarity of the hills is the extreme narrowness of their terminal ridges, which are frequently only a few feet broad, and descend abruptly on each side. They are all of a rounded form, and none rise more than 2, or 300 feet above Merkara. The table land to the west, is broken into numberless small rounded eminences, like reversed tea-cups, the valleys being filled with wood, forming a succession of very picturesque, and pleasing scenery. A peculiarity of the numerous streams found in these valleys, is that they in general flow to to the westward, although their sources in many instances are within a few yards of the declivity of the western ghauts; the country of Coorg resembling in this, as in many of its general features—although on a smaller scale—the western parts of the Neilgherries.

None of the ranges of hills in Coorg appear to possess superior advantages to Merkara itself, in a sanatory point of view.

A small river which falls into the Haringhee rises close to Merkara; there are no lakes, morasses or canals in the neighbourhood.

Watar. Water is supplied partly from the river above-mentioned, and partly from numerous springs in the immediate vicinity of the town and fort, the water from two of which is collected in large stone tanks; and a well of good water also issues from the hill, on which the fort is situated.

Fort and cantonment. The fort is placed as before observed, on the summit of a naturally isolated hill, which has been partially levelled; the soil being litho-margic earth of the same description, as that generally found throughout the country; it is distant not more than 150 yards from the boundary ridge of the table land on the south, with which it is artificially connected by a mound. On the south and south-west slopes of the hill, and below the fort, are the sepoys lines, not very regularly disposed, but tolerably clean and airy, having a stream of running water in the valley immediately below them; the huts are of the description usually erected by sepoys, wattle and mud, with thatched roofs. The regimental bazaar is on the same side of the hill; and on the north side is another artificial mound connecting the hill with the native pettah or great bazaar, which forms a street of good houses, about three quarters of a mile in length, and terminated by two buildings, the tombs of the late Rajahs.

The Fort is an irregular polygon of seven sides, at each of six of the angles of which is a round bastion, and at the seventh, a gate-way; it is surrounded by a single strong wall of stone, about 12 feet high, by 10 thick; with a parapet of masonry 5 feet high, and 4 thick; below the wall on the south, and west sides, is a fausse-braye, and an imperfect ditch; the principal gate is in the east front, and there is a sally port in the north-west angle. There is no well or tank within the fort, though a good spring issues from the base of the hill on the north west, which might probably be struck by boring or sinking a shaft*; great care has been taken in constructing drains, and the fort is at all times perfectly dry and clean.

* Besides this defect it is considered valueless, as a place of defence, against *disciplined* troops, being commanded from numerous points, within breaching distance; and could moreover be easily escaladed.

The outer gate leads to an oblong square, one side of which is occupied by a public bungalow for travellers, the Dewans' cutcherry, and the jail.

Jail. The latter building forms a square, each side of which is 82 feet in length, it encloses a small open court, and is surrounded by a verandah 9 feet wide; it contains, 2 large wards, one 42 feet by 19, the other 28, by 20; and 3 smaller ones, which are usually occupied as an hospital, and as convalescent wards; a kitchen and store room are also attached to it. The wards are all 8 feet high, and have windows 3 feet by 2; the guard room is in front, and the necessary behind, with a deep cess pool adjoining, into which quick lime is thrown at stated intervals, to destroy offensive effluvia. It is a substantial building well adapted for the purposes of a jail, and affords ample accommodation for 100 prisoners.

At the angle of the square is a large and handsome building occupied as a cutcherry, and the Superintendents residence. The second and third gateways being connected, as usual in native forts, by a traverse, lead into the inner square of the fort, which is partly flagged with granite; the south side was formerly occupied by the old palace of the Rajah, but being ruinous, has lately been pulled down.

Rajah's palace. Directly opposite the gate-way, is the new palace, a large square substantial building having numerous windows in front, and built much in the style of a french chateau.

The palace is constructed on a plan much superior to the generality of native buildings, though there is a want of light in the upper and back rooms, which formed the zenanah.

The whole upper story, and a portion of the lower front, is allotted as the officers' quarters, and mess-room; and in the rear is the public treasury; there are also numerous store rooms, &c.

Barracks. The barracks of the small detachment of European artillery consisting of 22 men, are situated in the lower story of the north-west angle of the palace, fronting outwards;

their barrack room is 23 feet long, by 26 wide, and 13 high, having one large window, and one door; the old hospital and guard room are adjoining, being separated only by a partition.

The barracks are sufficient for the accommodation of the party now occupying them, but could hardly afford room for a greater number. The space in rear of the palace, is occupied by a powder magazine; the cardamon godowns, and two small detached buildings with terraced roofs, which have been converted into solitary cells. The latter are dry and airy, though rather cold in the monsoon; no disease has been traced to them.

Hospital. The new hospital lately erected, is about 30 yards from the south curtain of the fort, with which it communicates by a sally port, the space between being the remains of the glacis, part of which has been cut away, to make room for the buildings; but before a good foundation could be obtained a perpendicular escarpment was requisite to be cut to the depth of 15 feet; the floor of the hospital is therefore 15 feet below the foot of the curtain, and the face of the escarpment constitutes a bank of that height immediately in front of the north verandah.

It is a long tiled building consisting of a native, and an European ward, a surgery, and three verandah rooms, enclosed by a verandah 10 feet wide. The native ward is 82 feet, by 21, with a fire place at each end, the doors are 8 feet high, and 4 broad, having swinging glass ventilators above the windows, which are provided with venetians. The walls are 16 feet high.

At the west end is the European ward, 25 feet by 21, with a bath room off the south verandah, the windows are similar to those in the native ward, provided also with venetian shutters, and glass swinging ventilators, there is a fire place also in this ward. A bath room, and a dead room, are attached to the hospital, both of which are $10\frac{1}{2}$, by $8\frac{1}{2}$; they communicate with each other, and each has a glass window 4 by 3

feet, facing the south; and there are separate cook rooms for the natives, and Europeans, and also necessaries.

Population. The population of Merkara, with the exception of a few of the higher class of natives who occasionally reside there, is composed almost entirely of the military, with their numerous dependents and followers, and Mysoreans, who are generally shop-keepers and tradesmen; the subjoined remarks therefore apply principally to the military.

Disease. By far the most prevalent diseases are fevers generally of the intermittent type, and dysentery; next to which in frequency is rheumatism.

Fever. Fever, except occasionally in the cold season, is neither severe nor obstinate, yielding to the ordinary remedies; it is generally of the quotidian type, and seldom produces engorgements of the spleen or liver; the exciting cause can generally be traced to exposure to alternations of temperature; for in the monsoon season when the climate is equable, it is rarely seen; but in the cold weather the disease is now and then complicated with congestion, or inflammation of the lungs, and is then much more formidable. Natives bear depletion better in this climate, than in the low country. Europeans are not particularly subject to fever, at any season of the year.

Dysentery. Dysentery is generally produced by imprudence in diet, or from sleeping on damp ground; it is exceedingly common among children, but is rarely fatal, except when it has existed for some time previous to applying for assistance. The application of a few leeches to the abdomen, and the use of ipecacuanha with extract of gentian generally checks the disease in a few days.

Few cases of dysentery have been met with in Europeans, these were however obstinate; but when the force first entered the country, it was very prevalent, and severe. The climate appears to be inimical to persons suffering from relaxed bowels, particularly if complicated with congestion of the liver.

Rheumatism. Rheumatism is not usually severe, and strange as it may appear, least frequent in the wet season; it now and then becomes necessary to send convalescents from this complaint out of the country for a short time, to prevent relapses.

Wounds and ulcers. Wounds and ulcers are exceedingly troublesome, and frequently slow in healing; the latter in particular sometimes resist every plan of treatment, including active constitutional remedies, and require change of air for their cure.

Cutaneous affections. Cutaneous diseases are rather common, and somewhat obstinate; psora is very prevalent, and a few cases of leprosy have been seen.

Cholera. Cholera has not been known as an epidemic, for many years, but three or four sporadic cases have been met with.

Variola and varicella. Variola is not common, vaccination having been pretty extensively practised, though not without great difficulty, as it frequently fails even in the dry season, and in wet weather seldom succeeds.

Varicella is common, but mild.

Measles and scarlet fever. Neither measles, or scarlatina, have come under observation.

Worms. Worms are very common in children, probably from the use of raw vegetables.

On the whole, as before observed, the climate must be pronounced highly favourable to the European constitution; and but little less so to the natives of the plains, at least after a short residence. There are no diseases which are considered peculiar to any class of the inhabitants.

Diseases of prisoners. The most common complaints amongst the inmates of the jail, are dysentery and fever, both, as might be anticipated, more obstinate and severe, than in the military, or free inhabitants. Subsequent to the late insurrection in Canara when the number of prisoners was greatly increased, they

amounted for some time to 500 and upwards, and were consequently a good deal crowded, the mortality was very high, 14 having died within a very short time, every mode of treatment appeared to be equally unavailing. Most of the sufferers were natives of Umrsoolia below the ghauts, and the complete change of climate and food, doubtless had much effect in producing both the disease, and the unfavorable result.

The following tables shew the nature and amount of disease and mortality which have occurred amongst the native troops at this station from 1835, when first garrisoned, till 1843, a period of nine years; and also amongst a body of prisoners kept here since 1836, a period of eight years.

Table exhibiting the number of admissions and deaths amongst the Native troops stationed at Merkara, during a period of nine years, from 1835 *to* 1843 *inclusive.*

Aggregate strength, 8902. CLASSES.	DISEASES.	Admitted.	Died.	Admissions from each class.	Deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick.
Fevers	Febrisephemera	337	1	1625	19	18 ·254	1 ·169
	„ intermit quot.	1217	10				
	„ tertiana	30	1				
	„ remittens	23	5				
	„ com: cont.	18	2				
	Cholera	7	4	7	4	0 ·078	57 ·142
Diseases of the abdominal viscera	Diarrhœa	156	3	456	13	5 ·122	2 ·850
	Dysenteria acuta et chronica	101	9				
	Colica	93	0				
	Obstipatio	10	0				
	Dyspepsia	63	1				
	Splenitis	6	0				
	Gastritis	3	0				
	Hœmorrhois	20	0				
	Hepatitis	4	0				
Diseases of the lungs	Catarrhus	54	2	98	13	1 ·100	13 ·265
	Asthma	27	0				
	Phthisis pulmonalis	2	2				
	Pneumonia	9	5				
	Hydrothorax	2	2				
	Dyspnœa	4	2				
Diseases of the brain	Apoplexia	2	2	52	6	0 ·584	11 ·538
	Epilepsia	8	1				
	Paralysis	17	1				
	Mania	23	1				
	Tetanus	1	1				
	Delirium Tremens	1	0				
Eruptive fevers	Variola	2	0	58	1	0 ·651	1 ·724
	Varicella	40	0				
	Rubeola	13	1				
	Erysipelas	3	0				
Dropsies	Anasarca	51	6	52	6	0 ·584	11 ·538
	Ascites	1	0				
Rheumatic affections	Rheumatacutus et chronicus	374	5	374	5	4 ·201	1 ·336
Venereal affections	Syphilis primitiva	47	0	163	1	1 ·831	0 ·613
	„ consecutiva	42	0				
	Gonorrhœa	31	0				
	Hernia humoralis	41	1				
	Strictura urethræ	2	0				
Specific diseases	Lepra	6	0	65	2	0 ·730	0 ·076
	Elephantiasis	3	0				
	Dracunculus	22	0				
	Atrophia	28	2				
	Scrophula	6	0				
	Morbi oculorum	43	0	43	0	0 ·483	0 ·000
	„ Cutis	603	0	603	0	6 ·773	0 ·000
	Other diseases	1535	2	*1535	2	17 ·243	0 ·130
	Total	5131	72	5131	72	57 ·638	1 ·403

Per centage of deaths to strength 0.808.

* Of this number were Phlogosis 190, Ulcus 286 and 1 death.

JAIL OF MERKARA.

Table exhibiting the number of Admissions and Deaths of the convicted prisoners. from each class of disease, from 1836 *to* 1843 *inclusive.*

Aggregate strength. 446. CLASSES.	DISEASES.	Admitted.	Died.	Total admissions from each class.	Total deaths from each class.	Per centage of sick to strength	Per centage of deaths to sick.
Fevers	Febrisephemera	59	1	445	9	99 ·775	2 ·022
	„ int. quot.	380	6				
	„ remittens.	1	0				
	„ com : cont.	5	2				
	Cholera	4	2	4	2	0 ·896	50 ·000
Diseases of the abdominal viscera	Diarrhœa	63	3	197	8	44 ·170	4 ·060
	Dysenteria	64	3				
	Colica	49	0				
	Dyspepsia	16	0				
	Icterus	1	1				
	Hœmorrhois	1	0				
	Splenitis	2	1				
	Hepatitis	1	0				
Diseases of the lungs	Cynanche	5	0	51	4	11 ·434	7 ·843
	Catarrhus	31	1				
	Asthma	13	2				
	Pneumonia	2	1				
Diseases of the brain.	Cephalalgia	5	0	11	2	2 ·466	18 ·181
	Epilepsia	6	2				
Eruptive fevers	Variola	0	0	8	0	1 ·748	0 ·000
	Varicella	8	0				
	Rheumatismus	65	2	65	2	14 ·573	3 ·076
Dropsies	Anasarca	2	2	3	3	0 ·672	100 ·000
	Ascites	1	1				
Venereal affections	Syphilis	2	0	4	0	0 ·896	0 ·000
	Gonorrhœa	1	0				
	Hernia	1	0				
Specific diseases	Lepra	1	1	2	2	0 ·448	100 ·000
	Atrophia	1	1				
	Morbi oculorum	1	0	1	0	2 ·466	0 ·000
	„ cutis	47	0	47	0	10 ·538	0 ·000
	Other diseases	265	0	*265	0	59 ·417	0 ·000
	Total	1113	32	1113	32	249 ·551	2 ·875

Per centage of deaths to strength 7·174.

* Of this number were Phlogosis 77, ulcers 122.

FRAZERPETT.

General description. Frazerpett having been occupied for a considerable time, by a large detachment of sappers and miners employed in making the great road to Merkara, a few words respecting it may be considered interesting. It occupies nearly the site of a fort commenced by Tippoo Sultan, called Jafferabad, or Khooshat-nuggur, which however was never finished, and is now in ruins ; situated on the left bank of the Cauvery, in a bend formed by a sudden turn of the river, opposite the Mysore frontier, and 19 miles east by north from Merkara, its elevation being about 1300 feet above the sea.

Soil. The soil is alluvial, but is well drained; it is surrounded by jungle, not however very dense.

From its position the climate is hotter than that of Merkara, but during the monsoon it is extremely pleasant, as very little rain falls there, and the heat of the sun is moderated by constant clouds, and light fogs.

Climate. The nights are cool and pleasant, nor is the sun ever very oppressive at any season, except for an hour or two at mid-day; and notwithstanding its being surrounded by jungle, it is decidedly a very healthy spot. The disease of the detachment have been few in number, chiefly slight fever, and bowel complaints, and attended with but a very trifling mortality.

METEOROLOGICAL REGISTER.

The instruments with which the subjoined observations were made, were placed in a detached building, over the inner gate of the fort, perfectly isolated, and open to atmospheric influences on every side. The roof is covered with a thick thatch, and the sides venetianed ; the interior is four and half feet square; the instruments being suspended on a frame in the centre, three and a half feet from the ground.

The barometer was made by Newman ; and of the thermometers, one was made by Jones, one by Robinson, and a third by Dolland, all agreeing exactly in their indications. The pluviometer (Howards) is kept on the outside of the same platform.

Monthly Abstract of the daily atmospherical Register kept at

Months.	Mean temperature Thermometer. Fahrenheit.		Mean pressure Barometer corrected to 32°. Fahrenheit.		Mean of hygrometer at 10 A. M.					Total rain—inches.	Mean evaporation in 24 hours.	Prevailing winds.
	6 A. M.	10 A. M.	10 A. M.	5 P. M.	Wet Bulb.	Difference.	Quantity of moisture.	Dryness.	Dew point.			
1835.												
June.....	66.7	69.9	———	———	———	———	———	———	———	44.77	20	W. N. W.
July.....	65.4	67.7	26.000	25.970	18.5	1.28	223.1	28.4	17.2	20.80	039	W. N. W.
August.....	65	68	26.007	25.980	18.6	1.	220.	24	17.4	23.25	030	W. N. W.
September..	64	68	26.050	26.010	18.3	1.8	210.	40	17.	13.53	030	W. N. W. E. N. E. N. N. E.
October.....	65	68	26.070	26.020	18.8	2	220.	40	16.5	10.24	035	W. S. W. E. N. E.
November...	63	67	26.115	26.080	17.7	2.8	200.	60	14.5	2.18	045	E. N. E. N. N. E.
December...	56	64	26.140	26.100	13.3	3.4	140.	75	8.9	———	———	N. E.
1836.												
January.....	53	64	26.160	26.100	11.	4.1	100.	120	2.2	———	———	N. N. E.
February....	56	69	26.172	26.135	12.5	7.	115.	160	2.	———	100	E. N. E.
March.....	61	73	26.140	26.070	13.4	8.5	130.	154	1.1	02	105	N.E.N.W.
April.....	64	75	26.103	26.056	18.3	5.2	210.	134	13.	187	057	W. N. W.
May.....	64	72	26.090	26.040	19.2	3.2	212.	64	16.	248	052	N. N. W.
Gen. means.	61.9	68.	26.97	26.051	16.3	3.6	188.	81.	11.4		052	

Total of rain 119.14.

Merkara, from 1st June 1835, to 31st May 1836.

General Remarks.
The monsoon set in on the 31st May, but was not violent till towards the end of the month. The mornings were damp and foggy, heavy showers occurring in the evening. The last six days the rain fell in torrents.
The monsoon continued very mild during this month, with intervals of fair weather. The equability of the temperature (the daily range not exceeding 4°) is remarkable.
The early part of the month was foggy, with little rain, on the 11th the monsoon set in and continued with little intermission, till the end of the month.
The rain continued steady till towards the end of the month, when the wind changed to the east and the rain diminished. The period of the equinox was marked by heavy thunder storms.
The early part of the month was damp and foggy with occasional rain, about the 20th the wind settled on the N. E. quarter, and it became colder. Heavy rain from N. E. on the last few days.
The north-east monsoon gradually cleared off, and may be said to have terminated about the 17th with a heavy thunder storm; the weather then became cold and foggy with high winds.
The early part of the month continued foggy and damp, but afterwards cleared up, and became bright and fine, with very high winds, mornings and evenings very cold.
The weather throughout this month was bright and clear, mornings and evenings cold, heat of the sun tempered during the day by a constant cold wind from N. E., often amounting to a storm.
Much the same as last month, but rather hotter in the middle of the day, and less wind. The hygrometrical state of the atmosphere varied remarkably (dew point varying from 13,2 to 7. without evident cause.
First part of the month dry and warm, latter cloudy and close; a good deal of thunder. Dew point varied from 16.8 to × 17.
Occasionally dry and cool at Merkara; much rain fell all round, a few thunder storms.
A most delightful month, weather cool, clear and fine, much less rain than usual, a great deal of sheet lightning with but little thunder.

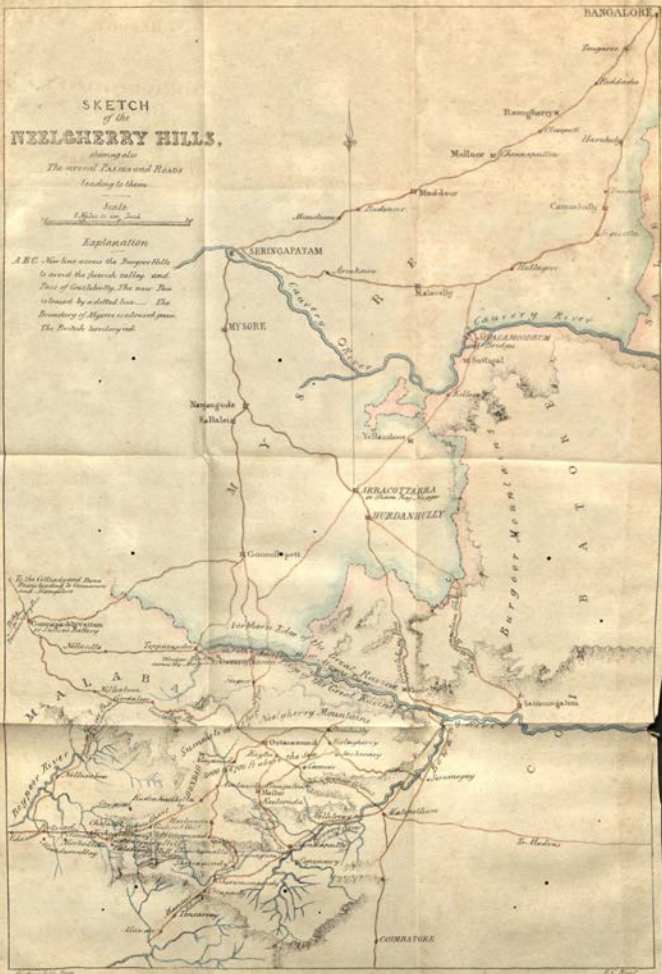
Monthly Abstract of the daily atmospherical register kept at

Months.	Mean of Thermometer. 6 A. M.	Mean of Thermometer. 10 A. M.	Mean of Barometer at 10 A.M. corrected.	Mean of hygrometer at 10 A. M. Wet Bulb.	Difference.	Quantity of moisture.	Dryness.	Dew point.	Total fall of rain	Prevailing winds.
1836.										
June.....	62	68	25.980	19.1	1.6	226.4	45	17.2	20.84	W. N. W.
July.....	62	64.2	26.025		Saturated.				23.74	W. N. W.
August.....	60	63	26.020		Do.				24.74	W. N. W.
September..	62	67	26.075	17.2	1.6	205.4	33	15.6	7.02	W. N. W.
October.....	63	68	26.125	16.1	6.1	149.4	129.6	8.7	0.55	W. N. W.
November...	60	70	26.120	15	7.2	128.	151.	5.4	1.55	E. N. E.
December...	58	70	26.180	12.2	7.8	97.6	154.4	1.5	0.07	N. E.
1837.										
January.....	56	69	26.175	11.6	7.2	98.9	139.5	0.3	None	N. E.
Feberuary...	60	74	26.210	15	8.8	112.	188.4	2.5	None	E. N. E.
March.....	64	76	26.170	16.4	8.9	124.	197.	4.6	1.29	Variable.
April.....	65	78	26.130	18.2	9.3	139.	218.	7.2	0.21	Do.
May.....	63	72	26.070	20	4.1	211.	93.	16.2	7.64	W. N. W.
Gen. means.	61.25	69.91	26.106							

Total of rain 87.04.

Merkara from 1*st June* 1836, *to* 31*st May* 1837.

General Remarks.
The monsoon was later than usual on setting in, and can hardly be said to have begun till the 19th. The quantity of rain also did not amount to half the fall in the corresponding month of last year. For a considerable portion of the month, the air has been so saturated with moisture, as to afford no indication by the hygrometer. The troops continue (as usual at this season) very healthy.
The monsoon has continued without intermission during the month, and the weather has been most disagreeable, exercise being almost totally precluded. The troops are very healthy, out of 12 cases in hospital, 9 are accidents.
The monsoon has continued without intermission throughout the month, with almost constant rain or fog, and high winds, the air being intensely damp, and the sun scarcely ever visible. The troops continue extremely healthy.
The monsoon continued but with diminished violence, when the weather cleared up, and has since been fine and clear with occasional fogs, and thunder storms; the wind is drawing gradually round to the northward, and the nights are becoming cold, a few cases of rheumatism and fever among natives, have presented themselves, attended with determination to the head and chest; this is usual on all changes of the weather.
The weather during this month has been unusually fine dry and clear, with high cold winds from the N. E. so much so, as to occasion apprehensions of a deficiency of water for cultivation. The number of cases of slight fever, and rheumatism among natives, has also as usual in sudden changes of weather, considerably increased, but they are generally mild and yield to the usual simple remedies.
The N. E. monsoon may be said to have almost failed in this quarter. The weather during the month except a few casual showers, has been clear dry and cold. Fevers are becoming less frequent, and the troops are in general healthy.
The weather during the whole of this month, with the exception of two light showers, and occasional fogs, has been dry and clear, the mornings and evenings cold, with towards the latter part, storms of wind from E. and N. E., the troops continue very healthy, a few cases of rheumatism and fever of a slight description notwithstanding.
The weather during the past month has been uniformly clear cold and dry, with very high cold winds. The number of cases of fever has some what increased, with a tendency in some instances to congestion of the lungs.
The weather throughout this month has been intensely dry and latterly very warm, the season being more than six weeks earlier than usual. The scanty monsoon of last year now begins to be severely felt, causing drought all over the country. The troops continue healthy.
The weather during this month has been unusually close and hot, at least six weeks in advance of the two preceding seasons, water very scarce in many places; a considerable number of cases of fever with determination to the chest occurred after the showers, on the 5th and 6th, since which the troops have been as usual healthy.
This month has been warm and pleasant; but few showers have fallen, which is unusual at this season.
The early part of the month was warm and close, with a few heavy showers. The monsoon set in on the 25th (unusually early) with a heavy thunder storm, but as yet only a small quantity of rain has fallen, slight fever and bowel complaint, have been common among the followers and prisoners in the jail, but have not prevailed among the military.


SKETCH
of the
NEELGHERRY HILLS,
shewing also
The several Passes and Roads
leading to them.
Scale
Explanation
A B C. Nine line across the Bargeer Hills
to avoid the feirish valley and
Pass of Gudchetty. The new Pass
is traced by a dotted line. The
Boundary of Mysore is coloured green.
The British bordering red.
BANGALORE
Rayacotta
Mullaur
Maddoor
SERINGAPATAM
Kenkanore
Malavelly
MYSORE
Nanjengode
Kallalee
Yellandore
ARRACOTTARRA
or Hosur Nagar
BURDANHULLY
Goomelpett
Burgeer Mountains
BATTAHMAHAL
Cauvery River
Kistnagherry
Tapanore
Neelgherry Mountains
Ootacamund
Coonoor
Kotagherry
Kaitee
Kellada
Kellahorre
Kellahorre
Kellahorre

NEILGHERRY HILLS.

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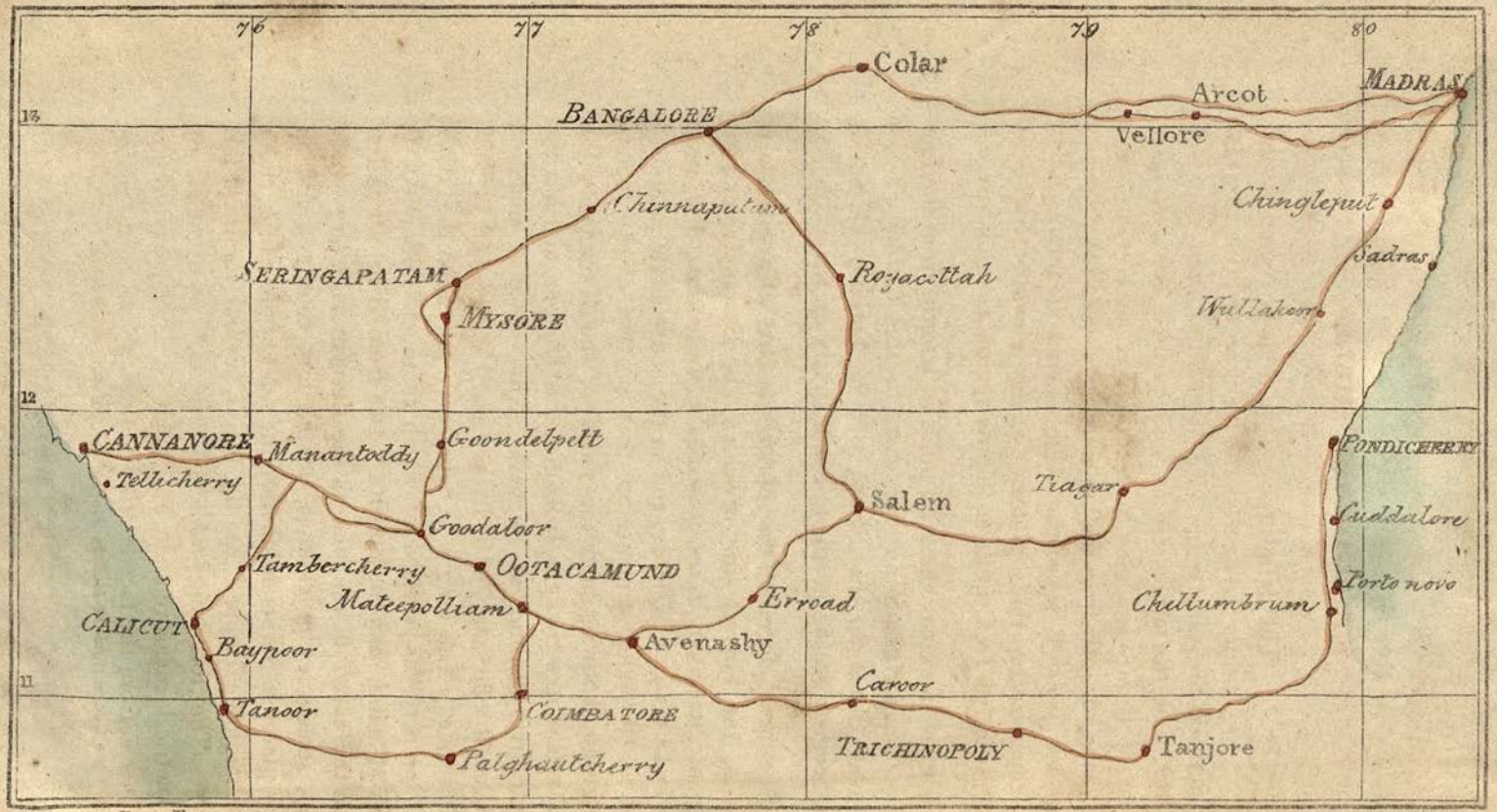
DIRECTIONS TO THE BINDER.

Plan of the Hills and the various passes—to face the title page.

„ of the principal roads leading to the hills..... 1



Madras Lith. Press

SKETCH of the PRINCIPAL ROADS leading to the NEELGHERRY HILLS.

E.C. Reget

NEILGHERRY HILLS.

General Description.

The delightful and salubrious region known under the name of the Neilgherry Hills, on which are situated the sanatarium of Ootacamund, first occupied in 1822, and the other stations, and various scattered residences of Europeans, may be described as an elevated table land rising abruptly from the low country; these hills are nearly altogether isolated from the neighbouring mountain chains, and comprise on their plateau, at an elevation of from 6,330, to 8,760 feet, quite an alpine region in miniature.

They are in extent about 50 miles in length, from the foot of the Coonoor ghaut on the east, to the bottom of the Koondah ghaut on the west; and in breadth 25 miles, from Seegoor on the north, to Soondaputty on the south.

The general form of the plateau is that of an irregular triangle, the longest side of which, the Bowany river running at its base, faces towards Coimbatore; the next side looks towards Malabar, and in the acute angle produced by these two sides, stretches out that portion of the mountain group, known under the name of the Koondahs; the third side of the triangle, looks towards Mysore, and has the Mayar river running at its base. This space is included between 76° 30″, and 70° 0″ E. long, and 11° 14″, and 11° 32″ N. Latitude. The length of what may be called the table land proper, the surface of which is much undulated, is about 30 miles, and its breadth varies from 8 to 16 miles. From the skirts of the plateau the descent is every where steep, sometimes precipitous, to the low country; and in many places so perpendicular are the sides of these hills, that a stone might be dropped into the plains, several thousand feet below. The following table of heights,* ascertained by barometrical measurement, by Major G. Underwood of the Engineers, from the foot of the Koondah ghaut, on the south-

* Taken from the Madras Journal of Literature and Science.

west, to Ootacamund, and thence down to the Seegoor ghaut, on the north, will afford a good idea of their elevation. From the bottom of the Koondah ghaut to Seegoor, through Ootacamund is 43 miles.

Table of heights above the level of the Sea.

Koondahs.	Sholay, bottom of the Koondah Ghaut	893	South westerly direction from Ootacamund.
	Bamboos begin	1757	
	Ladder Hill, bottom of	2972	
	Vullycand Camp, top of ridge	4140	
	Vullyaur river	4050	
	Murraypett bungalow	6742	
Avalanche range.	Avalanche ridge, top of	7732	
	Avalanche bungalow, at bottom of ridge	6720	
	Ootacamund lake, level of	7361	
New Seegoor Ghaut.	Blink Bonnie, 4 miles from Ootacamund, top of New Seegoor ghaut	7204	North direction from Ootacamund.
	Sapperpoorum, 1 mile below	6758	
	Stonehenge, about 2 miles down	6182	
	Red Hill below Killhutty, Burgher village about 3 miles down	5940	
Commencing at the seven Cairn Hills.	Waterfall point, proposed site for travellers bungalow, about 4 miles down and 8 from Ootacamund	5538	
	Adam's peak, north end of large basin, about 4½ miles down	4982	
	Giant's glen, about 5 miles down	4296	
	Tent mydan, about 4 miles	4001	
	Bamboos cease here.		
	Large nullah bottom of ghaut	3408	
	Seegoor	3393	

The general configuration of the hills on the Neilgherry table land, is characteristic and peculiar. They are of various heights from one or two hundred feet, to upwards of 1,400 which is the elevation of the highest peak, that of Dodabet, above the level of the Ootacamund lake. They are universally of a rounded form and outline, rarely broken by asperities or projecting rocks, and are covered with a close thick turf. The base of one hill rises close to that of another, leaving but a small interval between, so that a true valley is very rare, and a level surface of any extent, almost unknown. It is difficult to find appropiate terms to convey an accurate description of these singularly smooth, rounded and undulating hills; they present truly a "surg-

ing scene" to use an expression of Coleridge, resembling the billows of the sea suddenly stilled, solidified and fixed, while in their full carreer of heaving commotion. This is more applicable to the lower hills, *mammillons* to use the expressive term of a French author, but many upwards of a thousand feet high, have the same rounded contour. The valleys or ravines at the foot of these hills, are uniformly wet, sometimes having a rivulet running through them, but more often being marshy, there being no exit to admit of drainage. From these moist places commence the beautiful clusters of wood, called sholahs, which form a peculiarly striking feature in the scenery.

They stretch along the clefts and gorges of the hills, extending on either side in a defined line, over the mountain slopes, and often leaving an interval of green sward, which conveys the idea of an artificial plantation, rather than the wild arrangement of unassisted nature. Sometimes these woods clothe the whole of a hill side, or of several neighbouring hills; frequently picturesque clumps of trees are to be seen, isolated, and having the singularly defined outline mentioned above; or they are continued along in the clefts, hollows and gorges, of the mountain side.

Scenery such as this must exhilarate the mind, and thus favorably affect the constitution of invalids.

Ghauts or approaches to the hills.

In a description of the hills an account of the approaches is essentially necessary, as the health both of the traveller and invalid, may suffer from ignorance thereof, miasm in its most deadly form, being produced in the thick jungles around their base; and as these must be traversed, the danger requires to be guarded against, lives having been lost, from delays, and from passing the night in feverish localites.

There are several passes leading to the hills, only two of which are practicable for carts, viz: those of Seegoor and Coonoor—The Seegoor pass is the shortest and easiest of ascent—It commences at Goondelpett in Mysore, at a

Seegoor ghaut.

distance of six miles from which place the road enters the jungle,—crosses the Mayar river at Tippicadoo, and ascends from the village of Seegoor by Kilhutty, for a distance of eight miles,—and from thence continues, nearly level for four miles, to Ootacamund.

A path way, at the foot of the pass on this line, proceeds due north for six miles, to the edge of a precipitous ravine, upwards of 900 feet in depth, and 2,000 feet wide, at the bottom of which flows the Mayar river; and ascending the opposite side of the ravine, it strikes into the great Mysore road at Goondelpett, making the total distance from Seegoor to Goondelpett by this route 18 miles,—instead of 33, by the great road through Tippicadoo. It is however impracticable for carriages, and from the nature of the ground could not be improved, except at a very great expense.

Coonoor ghaut. The Coonoor ghaut, at the south-east side of the hills, the second in importance, although considerably steeper than the Seegoor pass, is perfectly practicable for wheeled carriages, and is in excellent repair. It commences at Matepollium, and proceeds through five miles of jungle, to the beginning of the ascent, from whence to Coonoor, at the top of the pass, is ten miles, the rise being constant, and in many places very steep; from Coonoor to Ootacamund, a further distance of ten miles, the road is very good, and there is only one hill of any importance, about a mile and a half in length, close to Ootacamund.

Quitting Matepollium, a branch road ascends direct to Kotagherry, a distance of twelve miles—but it is exceedingly steep, and totally impracticable except for persons on foot or on horseback.

Canoot or Koondah ghaut. The third pass, is that ascending from Canoot at the south west angle of the hills, to Sisparah on the Koondahs, which communicates with the western coast by Arricode, the Beypore river offering the great advantage of water carriage to within fifteen miles of the base of the hills; unfortunately, from the great height of the Koondahs

the ascent is long and steep,—and from the quantity of rain which falls in the south-west monsoon, the road has been rendered impracticable nearly every year.

Goodaloreghaut. The fourth pass, which for many years was the principal road to the hills, ascends from Goodalore at the north-west angle, to Neddiwattam, a distance of only four miles; this road is wide and in good order, having been lately repaired; it is however so steep as to be utterly impracticable for carriages. It now forms the principal line of communication with Manantoddy and Cannanore, but is comparatively little made use of—A branch road, now totally disused likewise strikes off from Goodalore, through Karkannah, to Goondelpett.

The most eligible route is that from Matepollium to Coonoor—there being a good bungalow at each of these points—and the distance, only fifteen miles, being easily accomplished in a few hours. The great extent of the jungle between Goondelpett and the base of the hills, at Seegoor, a distance of upwards of 26 miles, and the danger of being detained in it, offers a decided objection to that line;—the same objection is also applicable, still more forcibly, to the Koondah pass, which is rarely traversed, except at the height of the dry season.

The following more detailed account of the passes to the Neilgherry hills, is extracted from a report to Government by the Board of Revenue in 1844.; which has been obligingly placed at the disposal of the Medical Board.

Seegoor ghaut. This pass, which was completed in the year 1838, leads in a direction, nearly due north of Ootacamund, to the high road to Seringapatam, and Bangalore.

The only communication on the north side of the Neilgherries, prior to the construction of the Seegoor ghaut, was by Billikul, which runs at a short distance from it. This old pass was stated by Captain Underwood to be almost impassable. "At the best of seasons," that Officer says, "to surmount it alone, is four hours hard work for a cooly, the road "being cut in zigzags from top to bottom, up the steep face

" of a rocky stony mountain. After a heavy shower of rain, " the soil is so slippery, that it is really dangerous for foot " passengers to ascend, and loaded bullocks have been " detained in the jungle below for days together." Bad as it was, it was however much frequented by traders from the Mysore country, on account of the great circuit required to arrive at any other pass, and hence to facilitate the communication on this side, appeared an object of much importance, and the Seegoor ghaut was accordingly undertaken.

The total length of the ghaut, from Ootacamund to Seegoor, is eleven miles, the first three of which are properly on the summit of the mountain, and the last one and a half, on the low country—About half of the entire distance is upon ground nearly level, or with a very moderate inclination. The maximum rise is one foot in eight, and this only for short distances, to obtain perhaps a better level, or to avoid a difficulty. The greater part is one in ten, or fifteen. Moreover it must be remarked, that occasionally the road passes over a level, which is a great relief to men and animals. The slopes of the mountains on which the road is cut, are generally moderate, and the soil easy; advantages which saved much labour and expense at the first, and will diminish the cost of all future repairs.

This communication proceeds from Seegoor to Shembanuttum, and from thence, in a direction nearly west, to Tippicadoo, distant ten and a half miles from Seegoor, where the Pycarry or Mayar river is crossed by a wooden bridge, erected in 1841. The road here again turns to the northward, and passing through a belt of dense jungle, joins the old road from Goodalore to Goondelpett, near that place, and proceeds thence to Seringapatam, and so on to Bangalore.

Top of the Seegoor ghaut, from Ootacamund 4¾ miles..	Chuttrum.
Killhutty	Bungalow and
3 miles 5 fur. lower down ..	Chuttrum.
Foot of the ghaut, 4 miles 1 fur. lower down	Chuttrum.
Tippacadoo	
10 miles 5 fur. 110 yds., lower down	Chuttrum.
Total 23 miles 1½ fur.	

The ghaut is well provided with places of accommodation, both for European and native travellers. It is traversed with facility by wheeled carriages, and as no urgent reasons exist,

for halting in the unhealthy jungle near Tippicadoo, and at Seegoor, it may be safely pronounced the most useful communication with the Neilgherries. The distance from Madras by this route is thirty-four miles longer than by Salem, but the climate of Mysore, and the facilities for travelling in that country, are so much superior, that it is now generally preferred.

Road across the Mayar ravine.

At Shembanuttum, the road from Seegoor towards Goondelpett, turns suddenly to the westward, and crosses the Mayar river at Tippicadoo. East of that spot the valley of the Mayar breaks into a vast chasm, a thousand feet in depth, which was a great objection,—on account of the expense chiefly,—to continuing the road in a straight direction across it.

Subsequently however, in consideration of the danger to travellers from fever, and from wild elephants, in the jungle near Tippicadoo, as well as of the increase of distance, assumed at nine miles, by that route, it was resolved to open a new road across the ravine.*

Coonoor ghaut.

This communication stands next in importance to that of Seegoor, and was established several years earlier, the work being performed by the corps of pioneers.

Its situation is on the south-east side of the hills, where it forms the communication with Coimbatore and Trichinopoly, and also the principal one with Malabar,—being especially used by travellers from the Bombay presidency—and it is the shortest route to Madras, by Salem and Ahtoor.

The original alignment of this ghaut was faulty, although the situation is in some respects favourable, and the average inclination from top to bottom, only one foot in 12½, so much of this advantage was lost in the higher parts, which are exceedingly steep, being sometimes as much as one in five, that lower down there are level places, and even counter dips, which increase the distance, without forming a

* This work has not yet been completed.

necessary part of the communication. Owing to the great steepness, this ghaut has never been practicable to loaded bandies, but of late, its surface having been restored, it has been occasionally traversed by carts with light weights.

At three miles from the foot of the ghaut, runs the Bowany river, over which a bridge was built in 1840, and forms a most useful communication,—besides which there is a wooden bridge on masonry piers, over the Cullar, a tributary of this river, running between it and the foot of the ghaut. Near the former, is the village of Matepollium, from whence diverge the roads to Coimbatore and Trichinopoly—the former is in very good, and the latter in tolerable order.

The Trichinopoly route, was greatly improved in 1839, by the construction of a bridge over the Noyel river, and another bridge was about the same time built over a large jungle stream, between Matepollium and Annoor, the next stage.

This communication was once much used by travellers from Madras, but since the opening of the Seegoor ghaut, has been less frequented.

There is little or no jungle at the foot of the ghaut, and it has never been found feverish. Up to the year 1841, there were no places of accommodation between Coonoor and Matepolliam, a distance of fourteen miles. In that year a chuttrum was built at the Burliar stream, six miles from the summit, and affords a convenient resting place.—At Coonoor, there is a travellers bungalow, and a chuttrum.

Kotagherry and Dimhutty ghaut.

From the bridge over the Bowany, above mentioned, a road to the right of the one to Coonoor, leads to the pass of Dimhutty and Kotagherry; this is very steep and impracticable, but its difficulties were in some measure lessened, in the year 1837. It is still however much complained of, by the native merchants resorting to Kotagherry.

Road from Coonoor to Ootacamund.

The road from Coonoor is properly a continuation of the Coonoor ghaut, and was also originally constructed by the pioneers, but is treated of here as a separate subject, because it lies altogether on the summit of the hills, and has recently been the scene of extensive operations, for the improvement of its manifold defects.

The rise from Coonoor to Ootacamund, is 1,600 feet, and the distance ten miles, so that were it not for the intervention of several ridges, there would be no difficulty upon this line. The Koty-ridge, near Ootacamund, however, alone constitutes a most formidable obstacle. It cannot be turned, and its steep and rocky face renders the formation of an easy road across it, a work perfectly hopeless, without a disproportionate expense.

Koondah ghaut.

The Koondah ghaut, the next in order, forms the communication with Calicut, to the south-west of the Neilgherries.

The first operations carried on here, were in 1832, by the corps of pioneers, assisted by hired coolies: they were suspended in consequence of the rains, and the work left imperfect. At the latter end of 1835, it was again resumed, and finished in 1838.

There are three bungalows upon this line, at Cheecheparah or Sisparah, Marakullum and Edamunnah, besides the Avalanche between the ghaut and Ootacamund. The Sisparah bungalow, at the top of the ghaut, was built of wood, there being no facilities for building with masonry in that situation. It is to be regretted that it does not afford comfortable accommodation, and that the choultries constructed at five places along the route, are also considered quite unfit for so severe a climate as that of the Koondahs.

The length of the ghaut is twelve miles, from Goolical to Chalacal, and the average inclination is estimated as high as one foot in nine, while it is often actually much in excess of

this, through the loss of distance in level places, as in the Coonoor ghaut. The natural difficulties of the ground are very great, and it is supposed that what appears faulty in the alignment, is to be attributed to the impossibility of obtaining a more uniform slope, without a great increase of distance and expense, The "ladder hill," near the middle of the pass, constitutes the principal obstacle, which is surmounted by steep zigzags, at very acute angles, rendering the road alike difficult to every description of transit, and almost impossible to be kept in repair. It is quite impracticable for wheeled carriages, and every idea of making a carriage road in this situation, if ever entertained, is now abandoned.

The road from the top of the ghaut to Ootacamund, thirty miles long, is also difficult, and passes over a bleak country, where the severity of the weather has sometimes proved fatal to native travellers.

The jungle at the foot of the ghaut is about six miles in breadth, which is considerably less than at any of the parallel communications, but notwithstanding this advantage, the route has been very little used by natives, and Europeans are often prevented from following it, by the unwillingness of the coolies to encounter the severity of the climate, with wretched places of shelter.

Goodalore and Carcoor ghauts.

These passes are situated to the north west of the Neilgherries. The Goodalore pass leads from the hills, into the Bala-ghaut of Malabar, and the Mysore; but the Carcoor continues the communication with the coast, in a south-westerly direction.

Little has been done for the improvement of these passes, which are ancient native communications, still in constant use.

The Goodalore ghaut is very steep, but practicable for the ordinary traffic of the country, and although a line has been lately opened, from Sultan's battery to Tippicadoo, in order

to enable traders from the direction of Manantoddy, to make use of the Seegoor ghaut, the saving of distance by the old line of Goodalore, has been a sufficient inducement to them, to follow it in preference. The route by Goodalore, Manantoddy, and the Paria ghaut, to Cannanore was formerly much used by Bombay travellers, who now generally prefer the one by Paulghautcherry and Coonoor.

Soondaputty or Keeloor ghaut.

The Soondaputty or Keeloor ghaut, is situated to the south-east of the Neilgherries, forming part of a communication with Malabar by Manār, where there is another ghaut to be crossed, in order to reach the low country.

It does not appear that it has been explored by the officers of this Government, but the road from the foot of Keeloor, along the valley of the Bowany, and across the Manār ghaut, is deserving of particular attention, not only as a means of communication with the Neilgherries, but more particularly as being a shorter route by thirty miles, than that by Paulghaut, from Coimbatore and Malabar.

A better line it is supposed might be laid out to the northward, without much expense. The road above this ghaut, to Soondaputty is described as naturally good, and bordered all the way with houses and cultivation; it has been used from time immemorial, and there is nothing but the difficulty of the Manar ghaut to deter traders and travellers.

The Soondaputty ghaut is already much used, and the annual number of bullocks which pass through it, is 2,500,and it is expected would be greatly increased, were some of the principal obstacles removed.

Tullapoya ghaut.

The Tullapoya ghaut lies to the west of Soondaputty, and nearly south of Ootacamund, with which it is connected by Munjenaud, and Mail Koondah, and with Manar, by Uttapady, and Chunagum.

Little is known of this pass, except that its line of com-

munication is with the most cultivated and populous parts of the Neilgherries, and that it is used only by the Buddaghurs.

The only roads remaining to be noticed, are the minor ones on the summit of the hills. These are all bridle paths, but serve sufficiently well for the purposes of communication. The roads about the cantonment of Ootacamund, have been lately much improved, and carriages are frequently used upon them.

Geology and constitution of the soil.

Attention has lately been much directed to the production of diseases from terrestrial exhalations, dependent on the nature either of the rocks, or soil; should these be proved sources of morbific influences, the student of medicine must hereafter pay more attention, to the subjects of mineralogy and geology, than has hitherto been bestowed upon them.

The foundation rocks of the entire Neilgherry plateau, are of the primitive kind, and comprise the following varieties:—

1st.—Granite, sometimes composed of the three minerals, *mica*, *felspar* and *quartz*, but very extensively in the form of a binary compound called *pegmatite*, consisting of the two latter minerals only; hornblende, also, frequently enters into the composition of the granite, sienite giving a great variety to the appearance of the rock, and garnets are found in vast abundance, generally amorphous, but sometimes granular. The true granite consisting of mica, quartz and felspar, almost always forms the most elevated peaks:—

2d.—Hornblende rock, or primitive *greenstone*, composed principally of hornblende, mixed in a great variety of proportions, with felspar, quartz and garnets:—

3d.—Quartz in very considerable veins in the granitic rocks:—

4th.—Felspar in large veins:—

5th.—Basalt in vast dykes and veins:—

6th.—Magnetic iron ore, mixed largely with quartz:—

7th.—Hamatitic iron ore; both these ores are found in vast beds, in the granitic and hornblende rocks:—

8th.—Titaniferous iron ore, in moderate quantities:—

9th.—Umber, in small quantities:—

10th.—Manganese, in small quantity:—

11th.—Hornblende slate, in low situations in the valleys, and on the flanks of the plateau:—

12th.—Gneiss, containing hornblende, also on the flanks of the plateau.

The composition of these rocks would indicate the existence of a rugged contour, the spiry peaks and precipitous facade of granitic mountains; but these forms obtain in a very slight degree, for the rounded, undulating character of the hills, resembles more the forms assumed by calcarious formations, and depend upon a peculiar mode of decomposition of the rocks, which together with the soils resulting therefrom, may be thus explained.

The most common surface soil over the whole plateau, is a fine vegetable mould, from 2 to 3 feet, or more in thickness, of a brown colour, and crumbling easily.

Frequently a black soil is observed uppermost, especially in the valleys; when moist, it is of an intensely black colour, resembling soot in appearance; but when dry, it more approaches a brown colour, and is friable; it sometimes under-lies the vegetable soil, but is never seen above it, and it is not confined to the low grounds, but is found on the slopes of the highest hills, many feet in thickness. In one of the cuts for the new line on the Coonoor road, through the ridge overlooking Kaitee valley on the Ootacamund side,—is a section showing a layer of black soil, resting at a highly inclined angle, of 11 feet in thickness. This spot is several

hundred feet above the level of the Ootacamund lake. In appearance it strongly assimilates to the regur, or cotton soil, of the plains of India; but in chemical composition the two differ widely, and their origin must also be different. The black soil appears to be of vegetable origin, and its position, on the slopes of the hills, is a geological anomaly.

Lying under the vegetable mould, or the black soil, is seen a layer of gravel from a few inches to several feet in thickness, the debris of the subjacent rock. The fragments of which this gravel is composed, are small in size, and for the most part angular in shape, evincing that they have not been transported far from the spot whence they were derived.

In the very numerous sections for the roads around Ootacamund, and in the other places where similar sections afford opportunities of observation, this layer of gravel is invariably seen, forming a meandering line, in the situation above noted, and following all the undulations of the foundation rock. Upon examination it is found, that the pebbles of which it is composed, are of the same composition as the rock on which it is incumbent. One singular anomaly however is, that while the subjacent rock is decomposed, as will be hereafter seen, to a depth of many feet, the detritus retains more or less of its original hard structure.

This is not the place for the discussion of geological theories, but it may be observed, that this arrangement of the superficial strata, would seem to have taken place anterior to the elevation of the mountains, to their present height. It does not seem probable that the detritus could have accumulated, and been covered in by the vegetable or black soil, on the precipitous sides of the hills, as they now stand; but it is more likely that these upper strata, existed when the present table land of the Neilgherries, was at a much lower level. From the precipitous and abrupt manner in which the sides of the plateau descend to the plains of Mysore, and Coimbatore, it would appear as if the general upheaving force had been exerted upon the whole region, elevating it at once,

to its present altitude *en masse*, and disturbing the surface of the upraised area, only so far as to produce the undulating inequalities observed on the now existing plateau, and thus originating the otherwise unaccountable position of the superficial soils, and subjacent debris; here and there only the erupted rocks bursting through the generally smooth outline, and presenting few projecting masses, and fewer scarped and mural precipices, such as are usually seen in granitic tracts. Underneath these strata, lies the foundation rock, which is almost always in a singular state of decomposition. The hornblende rock decomposes into a red or yellow lithomargic earth, of a variety of shades; the pegmatite into porcelain earth, in which the felspar softens into a pure white clay, and the quartz disintegrates only; the felspar veins again decompose into unmixed Kaolin. The iron ores, too, decompose in situ, forming a substance resembling what in the low countries is called laterite or iron clay, and a kind of conglomerate results, from the agglutination of the detritus of this rock.

The lithomargic earth is clearly the result of the decomposition of the hornblende rock, for the process can be most distinctly traced in various places; the different minerals of which the rock is composed, being each visible in their separate modes of decay, the hornblende and garnets, by the hyperoxidation of their ferruginous constituents, giving the prevailing tints to the mass. It is impossible to say how deep into the mountain this decomposition is going on, for in the deepest sections that have been made, the process is still observed. In the new line lately formed on the Coonoor road, there is a magnificent cut through the whole thickness of a hill, between Kaitee and the valley, in which is located the pioneer camp, and here the process may be admirably observed. The section is 78 feet deep, and the lofty wall on either side, is entirely composed of the red lithomargic earth. In the centre of the road, while it was yet (1842,) in progress of formation, stood a huge globular mass in its original site, a ton or more in weight, the still undecomposed nucleus of a vast sphere, and here the rock might be observ-

ed in every stage of decay. In the centre was seen the highly crystalline hornblende rock, and towards the circumference, the gradual changes were observable, the stone at first acquiring a pale dusky brown colour, and gradually changing, till it ended in the soft lithomarge.

It is evident, then that this decomposition is still going on to an indefinite extent, into the very centre of the mountain; it is evidently quite independent of atmospheric influences; and indeed when the rock is exposed to the air, as it often is, in projecting masses of various size, it is hard and not much altered in structure.* It takes place, too, with some relation to the original crystalline structure of the mountain masses, which peel off in concentric lamellæ, leaving a central nucleus, which, when detached from the mass to which it belonged, appears like a bolder, and might be easily mistaken—as indeed they often appear to be in low lands—for fragments that have been rolled from a great distance. The road sections present numbers of these spheroids, and show the mode of decomposition described.

It is partly owing, no doubt, to this mode of decomposition that the hills acquire their rounded form, for whole mountain masses have the same spheroidal crystallization, and nothing is more common than to see the undecomposed rock, the pegmatite more particularly, splitting into fragments, which at first sight appear tabular, yet on closer examination, are seen to be spherical; but, the circle of which, they are segments, is so vast, that their form is not at first sight perceived, the fragments appearing flat.

Thus the peculiar rounded form of these hills appears to be accounted for, by the progressive decomposition, on the large scale as above described, the rock itself becoming rounded off, and smoothed still further by atmospheric influences, when sufficiently exposed to them; the action of these agents however, being prevented from laying bare the

* It would seem to be a continuous chemical action, which once commenced, has a tendency to spread geocentrically.

undecomposed rock, by the thick layer of soil, bound together by a closely contiguous and luxuriant vegetation, protecting the lithomargic earth from disintegration, which would otherwise be carried off by torrents of rain.

The valleys are swampy, but emit no offensive exhalations, and present a highly luxuriant vegetation of marshy plants, the surface being so boggy as not to permit the passage of a man over it. In these places the water collects from the clefts and gorges of the surrounding hills, and drains sluggishly off, until it comes to a spot where the declivity admits of its flowing in a stream to the low country.

Springs and Streams. Where the ground is sufficiently inclined, streams of water of the purest quality are found and springs arise from every hill side; at Ootacamund they are led off by small artificial channels, to the different houses. The water is usually very pure, but sometimes contains iron in small proportions.

Lake. Advantage is taken of the streams which flow from Dodabet, and the ranges of hills to the north of Ootacamund, to form an artificial lake. For this purpose a dam has been thrown across a defile, among the hills to the south, and a very considerable body of water has been thus accumulated, which forms an ornamental, and pleasing addition to the landscape. It occupies the winding low land, hardly to be called a valley, around which are situated the houses forming the station of Ootacamund. This lake is about $3\frac{1}{2}$ miles long, and varies in breadth, from about 50 to 200 feet.

On the table land of the Neilgherries, there are properly speaking no rivers, but the streams which pour down on all sides, to form the *Bowany and Mayar*, which wash the base of the mountains, are very numerous. The *Pycara*, is however a considerable stream, and flows down the N. W. angle to join the Mayar; and the waters of the lake, and the mountain rills to the N. of Ootacamund, become a torrent, which rushes down the gorge, from Killhutty to Seegoor, forming the source of the *Mayar*.

Water falls. The waters never accumulate in a sufficient body to form cataracts of much magnitude or sublimity, but the falls at Kaytee and Killhutty are picturesque ; as are also those of the tributaries of the Bowany river in the Koondahs ; and there is a considerable fall or weir, in the Pycara river.

Population. The number of inhabitants of the Neilgherry hills, is computed to amount to between 5 and 6000, who are divided into three principal classes viz. : *Toders, Buddagurs,* and *Kotars.* The former occupy almost exclusively the elevated western part of the hills, consisting of pasture land, and which bears their name. The two others dwell in distinct villages, in the eastern or lower range, known as the Buddagur country.

Toders. The toders a very remarkable race of men, are in stature above the general height. They are firm, erect, and muscular, have a brown complexion, and a cast of feature said to resemble that of the jew. Their hair is short and curled, and their beards bushy ; their features are so regular, that in an entire village, scarcely a man can be found who might not be called handsome. They wear no turbands, and their only clothing consists of a piece of coarse cloth, thrown over one shoulder, and folded on the body after the fashion of the highland plaid. The men however, cover their heads when in mourning. The toder women have long hair, which is parted in the middle, and allowed to flow in ringlets over the shoulders. They wear the same description of clothing as the men, differing in this respect, from all other native women. Both sexes are very uncleanly in their persons, and like some of the castes in the Malabar provinces, never change a cloth when once put on, but wear it till it drops off piecemeal. The toders are represented as being frank in their disposition, and possessing an independence of character, such as often distinguishes mountaineers. They are remarkable for a great flow of spirits, are fond of music, and soon become attached to the European residents. These people are hindoos, and are considered to be the earliest

inhabitants of the hills. They are a pastoral race, occupied solely in tending herds of buffaloes, and migrate from place to place, according to the state of the pasturage, and the season of the year; they entirely neglect cultivation. The violence of the south west monsoon, is avoided, by moving to the eastern verge of the todier-naad or todar land, and the north east, by shifting again to the western side. Their villages are formed of a collection of small huts, which from front to rear, are similar in shape to the arched roof of a waggon, without any opening but the entrance, the ends being closed with wood. The door is low and very small, and the roof and sides, are constructed of wattle and thatch. They live chiefly on the produce of their cattle, and use milk in their culinary processes, in place of water. The little grain made use of by them is procured from the Buddagurs and some accounts say, that it is received in the way of tribute, for permission to occupy and cultivate the hills; or that it is exacted under the influence of a superstitious idea of their being necromancers, a notion stated by Buchannan to be prevalent among the inhabitants of the low country, with respect to all the natives of the hills.

The toders have been suspected of female infanticide, which opinion seems to derive some support, from the small proportion of adult women to be seen, and from the custom amongst them, of all the brothers of a family, living promiscuously with the same wife. This practice is not however peculiar to them, but is common in some tribes in Malabar, as noticed in a former report. Some of these people are said to have acknowledged the practice of infanticide, but as it is also said, that amongst the children of the present time, there is no disparity of sexes, it may be supposed that it does not now exist. It is scarcely credible that such a custom can prevail, except by supposing, that infants are destroyed immediately after birth.

The toders are a very healthy race of people, and have no knowledge of medicine. They speak a corrupt dialect of the Canarese, which is common to all the inhabitants of the hills, but each caste has also its peculiar dialect; their numbers

have been estimated at about 264 males, and 163 females; forming a total of 427.

Buddagurs. The various tribes of buddagurs, who are called by some writers *bergers*, are also hindoos, and are the principal agriculturists. They inhabit the lower, or eastern range of the hills, and constitute the chief part of the population; their numbers being estimated at 2,455 males, and 2,453 females, total 4,908, and are subdivided as follows:

	Males.	Females.	Total.
Buddagurs.....	1992	1979	3971
„ Lingavunders...	163	186	349
„ Aroovers.....	92	104	196
„ Cunnakers.....	90	87	177
„ Toriers.....	89	85	174
„ Buders.....	9	12	21

There are some buddagur villages however, situated within the todier-naad. This race is somewhat superior in aspect to the natives of the plains; have rather a light complexion, and a little of the European contour of feature, particularly the Grecian nose, and are healthy in appearance, though wanting the physical strength, of the inhabitants of the other temperate climates.

They are said to have originally emigrated from Mysore, about 200 years ago, whence their name, vada-gar or budda-gar, *vada* signifying north. Polygamy is permitted amongst them, yet they have seldom more than one wife. Their marriages are productive, and twelve or fourteen children, by one mother, is stated not to be very uncommon.

The food of the buddagurs consists chiefly of coarse grain, a scanty portion of milk and butter, and vegetables. They have no aversion to animal food, and eat the young male buffalo, but poverty places it generally beyond their reach. They mix their flour with water, in which state they generally eat it, without any further culinary process. The women and children are even worse fed, having often only the bran, or refuse of the grain.

They plough the land repeatedly, and manure it before sowing the seed; and obtain two crops in the year. Their implements of husbandry do not differ from those in use on the plains. The plough is followed by the women, who with a stick, and mallet break the clods; and to them also is intrusted the charge of weeding and reaping the grain.

This tribe possesses herds of bullocks and buffaloes, and use oxen in ploughing; the cattle are always milked by the men, the women not being allowed to approach them, nor are they ever employed in that occupation. They are said to be addicted to the use of opium. The men wear the same kind of coarse wrapper as the toders, but have in addition, a handkerchief or turband on the head. The women also use the wrapper, which is drawn into folds, tight round the body, and fastened by a girdle or string, under the arms; these people are quite as uncleanly as the toders, and like them never change their dress. They live in small villages, seldom containing more than 20 houses, distinct from the other tribes, and pay a tribute of grain to the toders. Their huts do not differ materially in construction, from those in the low country.

Kotars. The kotars are a dark, and in appearance, a miserable race of people, by far the worst looking on the hills, and are compared to the chucklers, and other low castes, of the plains. They inhabit the same country as the buddagurs, but live in separate hamlets. They are an industrious people, cultivate the soil, work as labourers or coolies, and are the artizans, and musicians of the hills; and being necessary to the toders, on account of their skill in handicraft, kotar villages are to be found throughout the toder country. The kotar villages are larger than any of the others, containing in some instances 40 or 50 huts, sometimes laid out with regularity. The habits, and dress, of these people, are much the same as those of the buddagurs, excepting that they do not wear a turband, or any covering on the head. They are the only race that eat the flesh of

animals, who die a natural death. Like the buddagurs they are tributary to the toders.

Other tribes. There are some other tribes or castes, as the *mullacombers*, who profess priest-craft, and whose numbers are very limited; and the *irralars*, called also *mudimars*, and *cossiewars*, the proportion of whom has not been estimated. These tribes are thinly scattered on the acclivity, or wooded region of the hills. They cultivate the plantain,and castor oil plant, with some of the smaller grains; and also collect bulbous roots, honey, wax and drugs, and catch wild animals. The irralars hold the most frequent communication with the natives of the plains, and seldom ascendthe higher hills.

Inhabitants generally. The inhabitants generally, are said to be remarkable for sobriety, and frequently attain a very advanced age.

The prevailing language is a corrupt dialect of the Canarese, but the people are quite illiterate. With the exception of the toders, who are frank and generous in their disposition, the others are represented as being extremely servile, cunning and penurious. They are however, acknowledged to be poor, and destitute of all the ordinary comforts of life.

The age of puberty is stated to be the fourteenth year in males, and the thirteenth in females. The women are usually very prolific, and cease childbearing at about the age of 40 years.

From the effect of hard labour, and of a diet inferior to that of the men, females become prematurely aged in appearance. From the use also of poor and innutritious food, it is supposed that a considerable mortality takes place amongst the children, especially in the earlier years of infancy. They are represented as having in general small limbs,with a prominent belly, and other marks of impaired constitutions. These observations however, do not apply to the toders, whose manners and customs place their women and children in a more favorable situation.

There are no regular priests amongst the inhabitants of the hills, or places of worship. Their religious observances are hence but few, and for these it would seem, that any convenient building can be appropriated. The toders have anchorites, or holy men, who retire to secluded spots, live naked and in solitude; they have certain duties to perform, and enjoy some privileges. The natives occasionally resort to particular hills, set apart for sacred purposes, especially that called Rungatsawmy, in the north east angle, to offer their devotions. In their marriage rites, they appear to follow in most particulars, the customs of some one or other of the tribes in Malabar. Those relating to the sepulture of their dead, are said to be curious. Buffaloes are sometimes driven round and round the deceased, accompanied with the discordant music of the kotars, until the animals become quite exhausted; and till lately they were driven astray in the woods, when they were usually killed and eaten by the kotars. Some accounts however imply, that the toders themselves kill buffaloes on these occasions, and after cutting off the horns, dispose of the carcasses in a clandestine manner, giving rise to the supposition that they are eaten by themselves.

Circular heaps of stones, or cairns, as they are called in Scotland, are met with on the summits of the hills, and in these when dug open, small coins and other articles have been found.

It is a prevalent notion, that the population of the hills, was in former times much greater than at present, though the causes of the reduction seem to be obscure, some referring it to war, others to disease, famine or oppression; their numbers have however increased considerably, since the hills have been resorted to by Europeans.

Dr. Buchanan, in the narrative of his tour through the southern parts of the peninsula, notices the Neilgherry hills, and describes them as "the hills west of Coimbatore," and says, they are inhabited by the *Malasir (Muleer ?)* the *Buddagers*, the *Erilagaru (Irralars ?)* and *Toders*. He notices

the prevalent belief amongst the people of the plains, that the inhabitants of the hills were sorcerers and magicians, and that their country was so unhealthy, that the low land people could not live there. The erilagaru women were said to charm tigers, so that they could leave their children to their care, when they moved abroad. Dr. Buchanan ascended the hill, or as he says, "took a long walk to the top," in order to see a *Cambay* or erilagaru village, from which it is certain he did not ascend as high as the table land of Jackanairy. He describes the village, as composed of seven or eight huts, made of bamboo wicker, and plastered with mud or clay, and says that the plough was in use with the toders; but that the Buddagurs only employed the hoe, the reverse of this however seems to be the case.

Climate. "* The prevailing winds on the Neilgherry hills, are those of the north-east and south-west monsoons. The former begins usually in October, and continues until March, when it shifts to the south or east, or is variable until June, when the south-west blows steadily. The north-east wind is usually ushered in with three weeks rain, when it is succeeded by clear cold weather, and frost at night; but in the day time, in the heat of the sun, the thermometer rises to 75° or 80° of Fahrenheit, and falls during the night sometimes to 28°. The coldness of the air, and its excessive dryness, which is often so great as to show no deposition by the hygrometer, withers most of the more delicate plants, such as grasses, willows and garden vegetables; but large trees do not appear to suffer; and some thrive, as the *Rhododendron*, which then puts forth its brilliant carnation flowers."

"During the south-west monsoon, which prevails from the begining of June until the begining of October, much rain falls, and the air is generally saturated with moisture, as indicated by the hygrometer; for, during the intervals of showers, a thick mist usually hangs over the hills, at which time the grass springs forth luxuriantly, and soon clothes them, to

* Extract from Dr. Birch's report, Madras Journal of Literature and Science, No. 20 of 1838.

their summits, with verdure. At the commencement of this monsoon, the wind blows very strong from the south-west, and sometimes amounts to a storm or hurricane, blowing down trees and blighting vegetation, as was the case in June, 1836."

A brief abstract of some of the principal points noticed by Mr. Dalmahoy in a paper on the meteorology of the hills, is here given, and according to that observer, the mean height of the barometer, at

	Inches.		Feet.
Dodabet..... is	22,242	the altitude being	8,429
Ootacamund.....	23,245	do.	7,197
Kotagherry.....	23,907	do.	6,407
Dimhutty.....	24,111	do.	6,166

The mean height of the barometer at the level of the sea, is 29.830. The mean annual range of the barometer at Kotagherry 0.245 and at Madras 0.360. The difference of atmospheric pressure on the superficies of the human body, between these two places is estimated to be equal to about three tons.

The mean temperature of Ootacamund has been estimated at 56° 4″, but Mr. Dalmahoy is disposed to consider this too low, and infers, as the result of various accurate observations, that the annual mean temperature is as follows, at

Dimhutty.....	64° 1,
Kotagherry.....	63° 4,
Ootacamund.....	60° 8,
Dodabet.....	56° 6,

The annual mean at the level of the sea, in the latitude of the Neilgherries, is estimated to be 82° 6″. and Mr. Goldingham has made it at Madras, 81° 7, at London 49° 5, and at Bangalore, at an elevation of 3000 feet, it has from late observations been ascertained to be 75°.

The ranges of temperature, and quantity of rain, are as follows, at

	Daily.	Monthly.	Annual	Rain annually.
Ootacamund.....	8°7	17,4	38°	63.880
Madras.....	7°4	16,3	29°	49.275
London.....	13°5	29.3	64°3	22.199
Bangalore.....			19°	34.83

In the latitude of the Neilgherries, the line of perpetual freezing is 14,621 feet above the level of the sea, according to professor Leslie's formula, or about 6000 feet above the summit of Dodabet.

The humidity of the climate of the Neilgherries, or indeed of that of Madras, can only be estimated hypothetically. Some observations were however made by Mr. Dalmahoy at Kotagherry, and from these, and taking the dew point at 6°. below the mean temperature all over the world, he estimates, that supposing complete dampness to be 100°, the relative dampness is, of

London.....	91°.
Madras.....	82°.
Kotagherry.....	76° 5″.

Of the state of the weather on the Neilgherry hills, the following summary is given for one year.

Dry days.....	260
Partial rain.....	88
Continued rain.....	14
Unrecorded.....	3—365.
Calm.....	214
Light Winds.....	130
Strong do.	21—365.

Frost on 28 nights, partial fogs 10 days, and continued fog 1 day. Winds most prevalent, from the north, and west.

In the important point of climate the Neilgherries appear to be at least on a par with the most temperate parts of Europe. The subjoined table exhibits the comparative state

of the principal atmospherical phenomena in Great Britain,* and on the Neilgherries,† for one year.

	Temperature of atmosphere in shade.						Solar radiation.		Moisture No. of days.				Quantity of Rain.
	Mean.	Mean Maximum.	Mean Minimum.	Mean Range.	Maximum.	Minimum.	Maximum.	Mean.	Rain.	Showers.	Cloudy.	Fair.	Inches.
Neilgherries.....	58.6	68.	48.5	16.7	77	38	22.6	15.8	19	81	28	237	44
Great Britain.....	50.3	58.7	41.8	16.9	90.	11.	65.	23.3	14	5	60	160	23

From the above table it appears that the mean temperature of the year, the mean maximum, and mean minimum bear about the same relation to each other, as in Britain, but are about 10° degrees higher, while the daily range is somewhat less. The highest observed temperature, and the lowest in England, are greatly above and below, respectively, the corresponding points on the Neilgherries, that is to say, the extremes are greater. The power of the sun's rays, another most important point in estimating the effects of exposure, is also considerably less on the Neilgherries than in Great Britain, the maximum and mean being both lower.

To sum up, the climate of the Neilgherries is more temperate than that of Great Britain, its whole range being also within the limits considered by all authorities, most favourable to the European constitution.

The number of days in which rain falls in England, (exclusive of snow) greatly exceeds the corresponding number on the hills, their being only 160 fair days in the one case, and 237 in the other; which is important as showing that although the quantity of rain is nearly double, the opportunities for taking exercise are more frequent; in the proportion of 24 to 16, or 1-3d.

There is also a greater equability of temperature, the daily range being less than in Great Britain, and the extremes

* British Medical Almanacs for 1836 and 1838, and Daniel's Meteorological Essays.
† Baikies observations on the Neilgherries.

much lower, viz. 77° and 38°, on the hills, instead of 90° and 11° in England.

These hills from their geographical position, come fully within the influence of the south-west monsoon, while from their elevation, they also feel the north-east. In January, February and March, a north-east wind prevails, during which the sky is clear and serene, the air is cold and bracing, and the whole climate at that period is felt to be highly delightful, and invigorating. In April and May, the weather is showery, but the air continues temperate, and notwithstanding the showers, it is on the whole dry. The winds are chiefly from the north. In June the south-west monsoon sets in; on the hills, however, the direction of the wind is chiefly westerly, and even to the north of west. The climate then becomes and contiuues rainy, till well on in December, and the air during that period is felt to be humid. The rains are sometimes heavy and continued, but not in a degree equal to what is observed on the coast of Malabar. July and August, are perhaps the most rainy months, but September, October and November, are at times also very rainy, and when there are no rains, there are occasional fogs, with cloudy weather. In October the wind gets round to the north and east, and towards the end of December, the dry cold weather is established.

Thus, three months are dry, clear and cold; two months showery, but not damp; and seven months rainy, foggy and cloudy, with fair intervals. The changes in the weather, at least the formation of clouds, whether dry or rainy, are often extremely sudden, and the disappearance of the clouds just as sudden. When clear, the sky is of a deep azure, and distant objects appear remarkably distinct and bright. Iron is slow in acquiring rust, even in rainy weather, and there is not much thunder and lightning

These changes of the seasons are not unattended with derangements of health, which are however generally unimportant. The change in June to a damp, rainy, and variable climate, causes catarrhs and sore throats amongst the

Europeans; but they are slight, unattended with fever, and generally pass off in a few days,even without the aid of medicine. Similar affections take place when the cold sets in and they are then equally slight. Europeans do not suffer much from rheumatism, and Mr. Haines who had considerable experience of the climate, did not know an instance of remittent fever happening in a European, which could be said to have originated on the hills. The native inhabitants also suffer at these two seasons, from slight intermittent fevers, and rheumatic pains in the joints. On the whole the rainy months, after the rain has been once established, appear to be the most healthy. Bowel complaint is not a frequent disease, amongst the natives of the hills, but it occurs chiefly during the rains.

Effectsofclimate on the health of the native inhabitants.

Mr. Haines examined ten buddagur villages containing a population of 818 souls, and found only eleven sick amongst them; and only one instance of broken health from intermittent fever. Of the eleven sick, one man and two children had fever, all the others were either slight cases of rheumatism, or local complaints. Cutaneous diseases are, as might be expected from the poorness of their circumstances, and the filthiness of their habits, very frequent. No case of cholera has ever been observed on the hills, The epidemic fever which ravaged the low countries in 1809, 10 and 1811, did not in the slightest degree affect the people of the hills. Small pox, a disease from the influence of which no climate or country is perhaps exempt, is occasionally seen, but a gentleman who has resided for a long time on the hills, affirms, that he has never observed a pock marked person amongst the natives; and has known two individuals who brought the disease with them, go through it, without its spreading to others. The health of the inhabitants on the lower parts of the hills, is not particularly mentioned; but a party of pioneers and coolies, natives of the low country, who enjoyed almost uninterrupted good health for a year or two, while employed on the table land; when called to work lower down, on the acclivity of the hill, suffered from remittent fever, of the worst description and many cases ended fatally.

Native servants, who accompany Europeans to the hills, if not well clothed and housed, suffer from the cold of the climate, and are very liable to attacks of fever, and to bowel complaints; Mr. Stoddart mentions also, that he saw several cases of fever amongst them which often lapsed into a fatal form of dysentery.

Mr. Orton observes, that sudden transitions of temperature, and exposure, probably bring into action the latent cause of fever, imbibed in other situations, and says, "the attacks of the disease amongst the followers almost entirely ceased to recur, after they had been sometime on the hills; whilst at places where fever is endemic, the reverse is the case." He had observed also, cases of fever amongst both the buddagurs and kotars, and in one village consisting of 30 families, six people died of it, in five months. In the todar village of Ootacamund, on the other hand, no death had happened for three years. A number of medical men have visited the Neilgherries from time to time, and several have resided there for very considerable periods; and none of them have advanced any observations more unfavourable to the climate, than those just stated, while all concur in opinion that they are free from any endemic, or epidemic sources of disease; and in attributing such complaints as do occur amongst the inhabitants, to poverty, and its attendant privations.

The plateau or table land, is elevated above the reach of the malaria of the wooded tracts, which encircle the hills, and as before mentioned, appears to be free from any sources of miasm.

Effects of the climate on European invalids.

There can be no doubt but the Neilgherry climate is highly restorative in debilitated European subjects, suffering from the effect of tropical heat, and disease consequent on a long residence in India. A sudden feeling of increased strength is experienced on first ascending the hills, with an exhilaration of spirits,—sometimes amounting to a degree of excitement which prevents sleep—and a general vigour of the system, which invalids are too

apt to mistake, for a renovation that is to be permanent, and they therefore indulge too freely in the pleasures of the table, and are apt to expose themselves imprudently to the climate. Those who have suffered much from fever also, frequently experience a recurrence of it, on ascending the hills, and it is apt to return at intervals; but it is unequivocally stated, that the feverish habit subsides, from a lengthened residence on them. There is seldom any sweating stage in the paroxysms of fever, from which such patients suffer, but they frequently experience a distressing sense of vertigo. The rarefaction of the air is stated not to be so hurtful to the lungs, as it is found to be in other elevated regions. Bilious diarrhœa however, and a copious secretion of urine, occur in persons newly arrived. On the whole, from past experience of the effects of the Neilgherry climate, it has been ascertained, that where a low temperature is admitted, on general principles to be favourable, it affords a good prospect of being beneficial in promoting recovery; and the climate appears also, to be favourable to children.

With respect to invalids, affected with organic disease of any of the important organs, the effect of climate, it must be admitted that a sea voyage, and the climate of Europe, offer a better prospect of recovery, than a residence on the hills. The same observation applies also to venereal disease affecting the bones, and to obstinate and extensive ulceration. The voyage of itself, is generally of the greatest benefit, in cases of organic disease, and the length of time usually required for the re-establishment of health, renders a resort to Europe preferable, in instances of that nature. Nevertheless, when circumstances do not admit of the patient returning to Europe, the Neilgherries may be resorted to with a very encouraging prospect of success, provided that the invalid remains on them a sufficient length of time; for it has been too common to expect that a six months, or even a three months stay there, is sufficient to effect, what an absence of from two to three years, is generally considered necessary to bring about, in Europe.

It is important to keep in view a remark of medical practitioners, that mercury exerts its specific action on the system much more readily in the colder climate of the hills, than in the plains of India, and it is also stated, that half the quantity of that mineral is found sufficient to produce its specific effect on the system.

It is particularly necessary to caution invalids who visit the Neilgherry hills, and indeed all strangers, against exposure to the sun's rays, as well as to excessive cold; for although the solar heat may not be oppressive, but on the contrary agreeable, it is still sufficiently powerful to blister the face and hands, and to produce much constitutional irritation. Cold likewise, and especially heavy dews, produce congestions of the internal organs, and should be carefully guarded against, and flannel clothing should invariably be worn next the skin.

Advantages of the climate for Europeans.

It follows from the preceding remarks, that the chief advantage of the Neilgherry hills, depends upon the moderate and equable temperature of the climate, which of itself is sufficient to cure or effect a decided improvement in a large proportion of intertropical complaints. The change of scenery, and relief from oppressive heat likewise, exert for a time, a favorable moral influence, but this it must be admitted is not permanent, and in no degree equal to that which a return home so generally produces. In the instances of officers therefore, of the civil and military services, a protracted residence on the Neilgherries, may sometimes fail in its object, but in the European soldier, who is usually less under the influence of moral impressions, the climate will in general be found sufficient to restore health in cases requiring chiefly a reduced atmospheric temperature for their cure.

A review, shewing the effects of the climate of the hills in the cases of European soldiers sent to the *Sanatarium*, between the years 1830 and 1832, and also in those of officers who resorted thither for the benefit of their health, during the seven years ending 1832, is given in the following extract from a report by the Medical Board to Government, at the close of that year.

"The convalescent depot at Ootacmund was announced to be ready for the reception of European invalids, in general orders by Government dated the 8th January 1830; and the first detachment of convalescents arrived at the station in May following. The accompanying tabular statements, Nos. 1 and 2, exhibit separately the number of European soldiers, of Her Majesty's, and of the Honorable Company's services, who have been admitted into the depot from its establishment, to the end of October 1832; the diseases on account of which a trial of the Neilgherry climate was recommended; and the degree of success with which the measure has been attended. The general results afforded by these statements, will be at once seen in the following abstract."

	Admitted.				Discharged.					
	In 1830.	In 1831.	In 1832.	Total Admitted.	Cured.	Improved but not cured.	As incurable on the hills.	Total.	Died.	Remaining 1st November, 1832.
Of Her Majesty's Service...	35	30	10	75	42	8	3	53	6	16
Of the Hon. Compy's service.	18	30	15	63	33	3	11	47	4	12
Total..	53	60	25	138	75	11	14	100	10	28

"It thus appears that of 138 men, of both services, received into the depot, 75 have been restored to good health, and were sent to rejoin their respective corps; 11 though not cured have been so much benefited as to be considered fit to return to duty; 14 have been discharged from the depot as incurable in the climate of the Neilgherries, 10 have died; and 28, (the majority of whom had but recently joined,) continued under treatment on the 1st of November, 1832. The average period of detention in the depot, of those reported cured or improved, was 10 months and 4 days; and of those discharged as incurable, 12 months and 11 days."

No. 1.

1830, 31, *and* 32.

Convalescent Depot on the Neilgherry Hills.

Return of European soldiers of H. M.'s service.

	Remained 1st Jan. 1830.	Admitted in 1830.	Do. in 1831.	Do. in 1832.	Total.	Discharged.				Died.	Remaining 1st Nov. 1832.
						Cured.	Improved, but not cured.	As incurable on the Neilgherries.	Total.		
Atrophy	0	1	0	0	1	1	0	0	1	0	0
Catarrh	0	0	0	1	1	0	0	0	0	0	1
Diarrhœa	0	3	3	3	9	5	0	1	6	0	3
Dysentery	0	10	8	4	22	12	3	1	16	1	5
Epilepsy	0	1	0	0	1	1	0	0	1	0	0
Fever continued	0	3	0	0	3	1	2	0	3	0	0
„ Intermittent	0	3	0	0	3	3	0	0	3	0	0
„ Remittent	0	0	5	0	5	3	0	0	3	0	2
Headache	0	3	1	0	4	2	1	0	3	0	1
Hepatic disease	0	6	4	1	11	6	1	0	7	1	3
Indigestion	0	2	0	0	2	1	0	0	1	1	0
Inflammation, abdominal	0	0	2	0	2	1	0	0	1	1	0
„ of Spleen	0	0	1	0	1	0	0	0	0	1	0
Ophthalmy	0	1	0	0	1	1	0	0	1	0	0
Palpitation of heart	0	1	0	0	1	1	0	0	1	0	0
Palsy	0	0	2	0	2	0	1	0	1	1	0
Piles	0	0	2	1	3	3	0	0	3	0	0
Rheumatism	0	0	1	0	1	0	0	0	0	0	1
Scurvy	0	1	1	0	2	1	0	1	2	0	0
Total	0	35	30	10	75	42	8	3	53	6	16

No. 2.

1830, 31, *and* 32.

Convalescent Depot on the Neilgherry Hills.

Return of European Soldiers of the H. C. Service.

	Remained 1st Jany. 1840.	Admitted in 1830.	Do. in 1831.	Do. in 1832.	Total.	Discharged.				Died.	Remaining 1st Nov. 1832.
						Cured.	Improved, but not cured.	As incurable on the Neilgherries.	Total.		
Abscess lumbar	0	0	1	0	1	1	0	0	1	0	0
Atrophy	0	0	4	1	5	4	0	1	5	0	0
Diarrhœa	0	1	2	0	3	2	0	1	3	0	0
Dropsy	0	2	0	1	3	1	0	0	1	1	1
Dysentery	0	2	4	2	8	3	0	3	6	0	2
Fever continued	0	0	2	0	2	2	0	0	2	0	0
„ intermittent	0	1	0	0	1	1	0	0	1	0	0
Headache	0	1	0	0	1	1	0	0	1	0	0
Hepatic disease	0	6	10	5	21	11	2	5	18	1	2
Indigestion	0	0	0	2	2	0	0	0	0	0	2
Inflammation abdominal	0	0	0	1	1	0	0	0	0	0	1
„ cephalic	0	0	1	0	1	0	0	0	0	1	0
Inflammation of bladder	0	0	0	1	1	0	0	0	0	0	1
Injury of Spine	0	1	0	0	1	1	0	0	1	0	0
Palpitation of heart	0	1	0	0	1	1	0	0	1	0	0
Palsy	0	1	0	0	1	0	1	0	1	0	0
Rheumatism	0	2	6	0	8	5	0	1	6	1	1
Sarcomatous	0	0	0	1	1	0	0	0	0	0	1
Wounds and accidents	0	0	0	1	1	0	0	0	0	0	1
Total	0	18	30	13	63	33	3	11	47	4	12

"As the benefit to be derived from the climate may be supposed to be materially influenced by the age, and duration of residence in India, of the persons resorting to it, it appears desirable to introduce in this place statements affording information on these points, in regard to the European soldiers who have been received into the depot."

Statement showing the ages of the European convalescents sent to the Depot on the Neilgherries, and the results of their cases.

Ages.	Number received into the Depot.	Discharged.				Died.	Remaning 1st November 1832.
		Cured.	Improved but not cured.	As incurable on the hills.	Total.		
His Majesty's troops.....							
Not above 20 years.....	5	4	0	0	4	0	1
From 20 to 25 years.....	35	20	4	2	26	2	7
„ 25 to 30 „	19	11	2	1	14	0	5
„ 30 to 35 „	12	6	1	0	7	2	3
Above 15 years..... ...	4	1	1	0	2	2	0
Total..	75	42	8	3	53	6	16
Honorable Compy's troops..							
Not above 20 years.....	3	3	0	0	3	0	0
From 20 to 25 years.....	25	12	1	7	20	1	4
„ 25 to 30 „	28	15	2	4	21	2	5
„ 30 to 35 „	2	1	0	0	1	0	1
Above 35 years.....	5	2	0	0	2	1	2
Total..	63	33	3	11	47	4	12
General Total .	138	75	11	14	100	10	28

Statement showing the period of residence in India, of the European convalescents sent to the Depot on the Neilgherries, and the results of their cases.

Period of residence in India.	Number received into the Depot.	Discharged.				Died.	Remaining 1st November 1832.
		Cured.	Improved but not cured.	As incurable on the hills.	Total.		
H. Majesty's troops.....							
Under 2 years	8	4	0	1	5	0	3
From 2 to 5 years.....	36	22	4	0	26	2	8
„ 5 to 10 „	18	8	3	2	13	1	4
„ 10 to 15 „	7	2	1	0	3	3	1
Above 15 „	0	0	0	0	0	0	0
Unknown.....	6	6	0	0	6	0	0
Total..	75	42	8	3	53	6	16
Honorable Compy's troops..							
Under 2 years.....	16	9	0	6	15	1	0
From 2 to 5 years.....	19	8	1	5	14	1	4
„ 5 to 10 „	14	8	2	0	10	1	3
„ 10 to 15 „	6	2	0	0	2	0	4
Above 15 „	2	1	0	0	1	0	1
Unknown.....	6	5	0	0	5	1	0
Total..	63	33	3	11	47	4	12
General Total..	138	75	11	14	100	10	28

"It will be observed, from these statements, that the majority of the convalescents were young men, not long resident in India; and the accompanying copy of the circular instructions, by which medical officers were required to be guided in selecting patients for the hills, will show that it has been

an object of particular solicitude to avoid sending thither any severe cases of chronic disease*."

Having thus stated the general condition of the soldiers sent to the depôt, and having shown the extent of the immediate benefit derived by them, the next subject of inquiry is the permanence of that benefit, in the case of men of the Honorable Company's service, respecting whom alone the Medical Board office possesses the requisite information."

On the selection of patients for transfer to the Hills.

*"The Medical Board deem it proper to point out for the guidance of Medical Officers, the cases which are considered likely to derive full benefit from the climate of the Neilgherries, and those, in which either a voyage to sea or a return to Europe, hold out a better prospect of restoration to health.

1st.—"Convalescents from fever, dysentery, and acute hepatitis, who are free from structural disease, but so debilitated as to render it improbable, that they would recover perfectly, under ordinary circumstances in India. These persons should be somewhat advanced in convalescence, and should require but little medical treatment. In cases of private soldiers, the men should in general be able to march, without much assistance in the way of sick carriage.

2dly.—"Persons debilitated from protracted residence in India, whether unaffected with any marked disease, or suffering from dyspepsia, irregular action of the bowels, or other symptoms of functional derangement of the viscera.

3dly.—"Young men of weakly constitutions, having no actual disease, but unfit for military duty from debility and exhaustion."

A voyage to sea, in preference to a resort to the Neilgherries, is to be recommended in the following cases:

1st.—"To persons who have been long subject to returns of intermittent, or who have repeatedly suffered from attacks of remittent fever.

2dly.—"To those who have either experienced repeated attacks of acute hepatitis, or have long suffered from chronic hepatic or dysenteric affections.

3dly.—"To those labouring under rheumatism, syphilitic, or pseudo-syphilitic affections."

"In the more severe cases of the three last classes, a return to Europe will generally be requisite. In less aggravated cases, a voyage of considerable duration must be considered essential; and leave, either to sea, to the Cape of Good Hope, or places to the eastward of it, or to the Cape and eventually to Europe, according to circumstances, should be recommended."

"The season of the year, and station on the Neilgherries to which patients are recommended to proceed, should be carefully considered; and the precautions, in regard to clothing and exposure, necessary for obviating the bad effects, which might arise from sudden reduction of temperature, on ascending the hills, should be particularly inculcated. Patients who are much enfeebled, and consequently most liable to suffer from such a transition, should, in the first place, proceed to the lower, and more temperate stations either of Kotagherry or the Kotah valley, especially during the monsoon months of June, July and August." Dated, December, 1830.

"The number of men of this service who left the depôt cured was 33, and improved 3. Of these 36, the following is the subsequent history:

25 have rejoined their respective corps,
9 are on route to rejoin,
1 died 25 days after leaving the depôt, and
1 was "transferred to Kaitee."

36

Of the 25 men who thus rejoined,
16 were in good heath,
4 were in improved, but not good health, and
5 were in bad health, and discharged.

25

Of these 25 men,
16 have derived permanent benefit,
3 have not been permanently benefited,
1 has but very lately rejoined in improved, but not good health, and
5 have been discharged from the service, invalided or pensioned.

25

"The 11 men reported as incurable, were only discharged from the depôt, in the course of September and October last, and their cases have not been further disposed of. The oldest of them was not quite 30 years of age, and those longest in the service, had been under four years in India, when sent to the depôt."

Their average age was..... .....24¼ years.
Average duration of residence in India.. 2 years nearly.
Do. Do. on the hills..... 1 year and 2 months."

"It is sufficiently obvious, therefore, from the preceding statements, that the benefit to the public service derived

from the convalscent depôt, has not been of extensive importance; but it must be admitted, that the establishment has hitherto laboured under great disadvantages. Placed in an elevated and unsheltered situation, without a surrouning wall, the building was fully exposed to the south-west monsoon, while its vicinity to the bazār afforded ready access to spirituous liquors, of which it was found impossible, with the means of restraint at command, to prevent the patients from frequently availing themselves; and its extent was too limited to admit of the desirable measure, of completly separating the convalescent and recovered men, from those under hospital treatment. A much more extensive and eligible building having, however, been recently appropriated for the purposes of a convalescent depôt, there is every reason to expect that the more important disadvantages, experienced, will now be removed; and that a more satisfactory trial, than has hitherto been possible, will thus be afforded to the climate."

"But, although the benefit hitherto derived from the convalescent depôt cannot, under these circumstances, be considered as indicating, in a perfectly satisfactory manner, the probable extent of the utility of a matured and well regulated establishment of that nature, we think it proper, on the present occasion to state, that, from the information before us, we see no grounds for anticipating, from such an establishment, any results of much importance in a financial or political point of view, if indeed its maintenance should not be attended with positive loss. When the distance of the greater number of stations occupied by European troops from the Neilgherry hills is considered, it will be obvious, that a resort to them cannot be available for the cure of acute diseases; and the medical reports, while they generally represent the climate in the most favourable point of view, tend to show that it is not well adapted for the cure of chronic diseases, attributable to a tropical climate, which chiefly lead to inefficiency, and consequently to discharge from the service, or transfer to the invalid or pension establishments."

No. 3.

Statement showing the diseases on account of which Men of H. Majesty's Regiments, serving under the Presidency of Fort St. George, were invalided during the years 1826, 1827, 1828, *and* 1829.

	Principal diseases attributable to a tropical climate, and likely to be cured, or materially benefited, by a return to Europe.								Chronic diseases not likely to be cured in any climate.															General Total.
	Fever.	Hepatitis.	Rheumatism.	Dysentery.	Diarrhœa.	Dropsy.	Headache.	Total.	Pulmonic affections.	Palsy.	Epilepsy.	Insanity.	Scrophula.	Deafness.	Contraction.	Hernia.	Stricture.	Wounds & accidents.	Ulcers.	Affections of the eye.	Do. of the skin.	Other complaints.	Total.	
1826.....	6	31	23	13	29	4	2	108	4	5	3	2	3	1	0	8	0	4	5	17	1	27	80	188
1827.....	7	36	63	21	9	8	4	148	9	6	2	2	6	4	4	5	1	8	7	15	0	8	77	225
1828.....	13	44	43	18	4	4	2	128	13	2	4	2	2	4	2	7	1	10	6	2	0	12	67	195
1829.....	6	59	23	14	1	0	1	104	11	2	0	4	0	0	2	4	2	2	1	9	2	23	62	166
Total.....	32	170	152	66	43	16	9	488	37	15	9	10	11	9	8	24	4	24	19	43	3	70	286	774
Annual Average....	8	42½	38	16½	10¾	4	2¼	122																193½

"On examination of the returns of men, of H. Majesty's regiments serving under this presidency, invalided from 1826 to 1829 inclusively, the four years preceding the establishment of the depôt, it appears that the average number annually invalided, on account of diseases attributable to a tropical climate, and likely to be cured, or materially benefited, by a return to Europe, was 122; the diseases affording this aggregate, being in the following proportions."

Fever.....	8	Of these the principal diseases were.	
Hepatitis.....	42½		
Rheumatism....	38	Hepatitis.....	42½
Dysentery.....	16½	Rheumatism....	38
Diarrhœa.....	10⅓	Bowel complains.	27¼
Dropsy.....	4		
Headache.....	2¼		107¼,
Total...	122	or nearly 9-10ths of the whole	

"It thus appears that hepatitis, rheumatism and bowel complaints, all of long duration, constitute nearly 9-10ths of the whole number of cases, in which a change of climate affords a prospect of recovery. And further it appears from the reports* of the medical officers on the spot, that the climate of the Neilgherries, is not considered favourable for recovery, from these diseases; and it consequently follows, that but a small proportion of cases of confirmed tropical disease, remain, in which it can be expected to effect a cure. As already noticed, it promises to be chiefly useful in cases of tedious convalescence from acute diseases; and in persons, who without marked disease, become prematurely debilitated by service in India, it may often effect such an improvement, as will enable them to continue at their duty for some time longer."

* Dr, Stephenson, the medical officer in charge of the Depôt, in his half yearly report dated 1st July, 1832, thus expresses his opinion.
"Hepatic disease." "No chronic case of hepatitis should in my opinion, ever be sent to the station."
"Rheumatism." "This is another disease to which the climate of the Hills is not well adapted, being too cold and windy for such affections."
"Diarrhœa and Dysentery." "I must observe that I do not consider the climate well adapted to these diseases, especially in the chronic form, or when combined with hepatic affections, as they are constantly subject to relapse from congestion, by exposure to the cold atmosphere of the hills."

"Having now submitted such information as appeared requisite, respecting European invalid soldiers, we proceed to the consideration of the results in the cases of the officers of government, civil and military, who have visited the Neilgherries on account of their health. As the number of these visitors, prior to the commencement of 1826, was not considerable, and as they did not in many instances, apply to the medical officer stationed on the hills, no regular account of them can be given before that period. The following abstract, exhibits the number who have annually resorted to the hills, from the begining of 1826, to the 1st October last, and the results of the cases."

Abstract return of Sick Officers, Civil and Military, treated on the Neilgherries from 1st January 1826, to 30th September 1832.

Years.	Remained 1st January 1826.	Admitted.	Total.	Discharged.						Died.	Remaining 1st October 1832.
				Cured.	Improved but not cured.	No bettter.	By transfer to another surgn.	On sick certificate to Europe	Total.		
1826.	7	9	16	6	4	1	0	0	11	0	0
1827.	0	29	29	9	5	4	0	2	20	0	0
1828.	0	35	35	8	16	0	0	0	24	1	0
1829.	0	43	43	31	0	0	12	2	45	3	0
1830.	0	42	42	24	6	0	4	7	41	2	0
1831.	0	40	40	22	10	0	0	9	41	3	0
1832.	0	33	33	19	4	1	0	2	26	2	19
Total..	7	231	238	119	45	6	16	22	208	11	19
Officers of the Bombay Establishment.....											
1830.	0	14	14	0	0	0	0	0	0	0	0
1831.	0	13	13	7	3	0	0	3	13	1	0
1832.	0	24	24	10	6	0	0	0	16	0	21
Total..	7	51	51	17	9	0	0	3	29	1	21
General Total..	7	282	289	136	54	6	16	25	237	12	40

"The officers of the Bombay presidency, have for some time been placed under the care of a medical officer of that establishment, but as a return of them has been furnished, we have thought it proper to introduce it, in order to render

the information as complete as possible. We have no accounts respecting Europeans not in the public service, who may have visited the Neilgherries, but have reason to believe, that their number cannot have been considerable.

"From the preceding abstract it appears, that during the period of six years and nine months which it embraces, 289 officers resorted to the Neilgherries on account of their health. Of these

136 are reported to have been cured,
54 improved but not cured,
6 derived no benefit,
16 were transferred to the care of another medical officer,
25 proceded on sick certificate to Europe,
12 died on the hills, and
40 remained under treatment on the 1st of October last.

Total...289

"The average duration of residence on the hills, of those reported cured was 7 months, of those improved but not cured, 7½ months, and of those who proceeded from thence to Europe on sick certificate, 6⅔ months."

With respect to the permanence of the benefit, there are no means for affording such precise information in the case of officers, as in that of European soldiers: but the following statements contain the whole information on this head of inquiry, respecting the officers treated by surgeons of this establishment, which could be collected from all available sources; of the 119, exhibited in the first part of the preceding abstract as having been cured,

13 proceeded to Europe within one year,
4 do. do. within the second year,
8 do. do. within the third year,

Total.....25

" Of the 45 reported as relieved or improved.

13 proceeded to Europe within one year,
2 do. do. within the second year,
2 do. do. within the third year,

Total.....17

" The 42 who thus appear to have proceeded to Europe being deducted from 164, the whole number who derived benefit from the climate, 122 remain to be accounted for. Of these the following is the subsequent history."

75 have derived permanent benefit,
23 have not been permanently benefited,
2 died within a few months after leaving the hills,
22 being officers of other presidencies, there are no means of tracing their subsequent history.

Total.....122

Medical Board Office,
24th December 1832.

Eighteen months after the date of the preceding report, the Government being satisfied that the benefits of the establishment for sick soldiers, were in no way commensurate with the expense attending it, and that it could be discontinued without any inconvenience of consequence, resolved that the Depôt should be abolished in July 1844. It was therefore in accordance with that resolution broken up at that period; but the hills have still continued to be resorted to, and in an increasing degree, by sick officers and their families; and the following tables, Nos. 4, 5, and 6, exhibit the number of admissions from each disease, and the results for a period of 18 years amongst the officers, and for a period of seven years, amongst the ladies and children.

Table No. 7, exhibits the sickness and mortality amongst a small body of prisoners (convicts); from 1834 to 1841 inclusive.

No. 4.—Table exhibiting the number of admissions &c. amongst the European Officers, from 1826 *to* 1843 *inclusive.*

CLASSES.	DISEASES.	Admitted.	Discharged.				Died.	Remaining.
			Cured.	Relieved.	Transferred.	To Europe.		
Fevers.....	Febrisephemera	5	4	0	0	1	0	0
	„ intermit. quot.	97	60	15	6	6	1	9
	„ tertiana	6	5	1	0	0	0	0
	„ remittens.....	30	18	3	3	2	1	3
	„ com. continua	10	7	1	0	0	0	2
Diseases of the Abdominal Viscera.....	Diarrhœa.....	13	7	2	2	0	2	0
	Dysenteria.....	30	17	1	4	3	4	1
	Colica.....	2	2	0	0	0	0	0
	Obstipatio.....	6	0	0	0	2	1	3
	Gastritis.....	2	0	0	1	1	0	0
	Enteritis.....	3	2	0	0	0	1	0
	Dyspepsia.....	251	160	49	5	18	3	16
	Hemorrhois.....	5	2	3	0	0	0	0
	Splenitis.....	1	0	0	0	1	0	0
	Hepatitis.....	126	68	27	4	14	7	6
Diseases of the Lungs	Cynanche.....	2	1	0	0	0	0	1
	Catarrhus.....	6	4	1	0	0	1	0
	Hœmoptysis.....	1	1	0	0	0	0	0
	Phthisis pulmonalis.....	1	0	0	0	1	0	0
	Pneumonia.....	2	1	0	0	0	1	0
	Dyspnœa.....	1	1	0	0	0	0	0
	Morbus cordis..	3	1	1	0	0	0	1
Diseases of the Brain.	Apoplexia.....	3	1	0	0	0	2	0
	Epilepsia.....	3	1	1	0	0	0	1
	Paralysis.....	12	4	4	2	1	1	0
	Hemiplegia.....	2	1	1	0	0	0	0
	Concussio cerebri.....	3	1	1	0	0	1	0
	Mania.....	1	1	0	0	0	0	0
	Delirium tremens.....	2	1	0	0	0	1	0
	Hypochondriasis	3	1	1	1	0	0	0
	Melancholia.....	1	0	1	0	0	0	0
	Cephalalgia.....	21	16	0	1	2	0	2
	Neuralgia.....	1	0	0	0	1	0	0
	Varicella.....	2	2	0	0	0	0	0
Dropsies.....	Anasarca.....	3	0	1	0	0	2	0
	Ascites.....	1	1	0	0	0	0	0
Rheumatic affections.	Rheumatismus.	27	17	5	0	5	0	0
	Arthritis.....	1	0	0	0	1	0	0
	Podagra.....	2	0	0	1	0	0	1
Venereal affections..	Syphilis primitiva.....	8	5	1	0	2	1	0
	„ consecutiva	11	3	4	0	1	0	2
	Dysuria.....	1	0	0	1	0	0	0
	Gonorrhœa.....	6	6	0	0	0	0	0
	Hernia humoralis.....	6	3	0	1	1	0	1
	Strictura urethræ.....	7	6	1	0	0	0	0
	Diabetes.....	1	1	0	0	0	0	0
	Ischuria.....	1	0	0	0	0	0	1
	Debilitas.....	16	13	2	0	1	0	0
Specific diseases.....	Lepra (vulgaris)	1	1	0	0	0	0	0
	Atrophia.....	7	2	0	0	3	0	2
	Scrophula.....	3	2	0	0	0	0	1
	Scorbutus.....	1	1	0	1	0	0	0
	Cachexia.....	6	4	0	1	0	0	1
	Morbi Oculorum	12	5	4	0	0	0	2
	„ cutis.....	7	3	2	0	2	0	0
	Phlogosis.....	12	7	4	0	0	0	1
	Ulcers.....	17	9	4	0	2	1	1
	Bubo simplex..	8	5	2	0	0	0	1
	Hepatic derangments.....	4	2	2	0	0	0	0
	Other diseases..	32	23	3	1	2	1	2
	Total.....	858	509	148	35	73	32	61

No. 5.—*Table exhibiting the number of admissions, &c. amongst European Ladies, from* 1837 *to* 1843 *inclusive.*

CLASSES.	DISEASES.	Admitted.	Discharged.					Remaining.
			Cured.	Relieved.	Transferred.	To Europe.	Died.	
Fevers.....	Febris ephemera	5	4	0	0	0	0	1
	,, intermit quot.	12	11	0	0	1	0	0
	,, remittens.....	2	1	0	0	0	1	0
	,, com: continua	1	1	0	0	0	0	0
Diseases of the abdominal viscera.....	Diarrhœa.....	36	33	0	0	0	0	3
	Dysenteria.....	8	7	0	0	0	1	0
	Obstipatio.....	166	140	1	0	0	0	25
	Dyspepsia.....	97	79	0	0	0	0	18
	Gastritis.....	1	1	0	0	0	0	0
	Splenitis.....	2	1	0	0	1	0	0
	Icterus.....	3	2	0	0	0	0	1
	Hepatitis.....	27	18	5	0	1	1	2
Diseases of the Lungs	Cynanche.....	4	4	0	0	0	0	0
	Influenza.....	12	10	0	0	0	2	0
	Catarrhus.....	26	25	0	0	0	0	1
	Pneumonia.....	1	1	0	0	0	0	0
	Hydrothorax...	1	0	0	0	0	1	0
Diseases of the Brain.	Cephalalgia.....	6	6	0	0	0	0	0
	Neuralgia.....	19	16	1	1	0	0	1
	Hysteria.....	22	20	1	0	0	0	1
	Epilepsia.....	1	0	1	0	0	0	0
	Paralysis.....	2	1	0	0	1	0	0
	Mania.....	2	1	1	0	0	0	0
	Variola.....	1	1	0	0	0	0	0
	Ascites.....	1	1	0	0	0	0	0
Rheumatic affections.	Rheumatismus..	4	4	0	0	0	0	0
	Odontalgia.....	1	1	0	0	0	0	0
Specific diseases.....	Leucorrhoea....	6	5	1	0	0	0	0
	Amenorrhœa..	32	29	0	0	0	0	3
	Menorrhagia...	2	2	0	0	0	0	0
	Parturito.....	56	54	0	0	0	2	0
	Abortus.....	2	2	0	0	0	0	0
	Polypus in utero	2	2	0	0	0	0	0
	Abscessus.....	4	4	0	0	0	0	0
	Debilitas.....	71	69	0	2	0	0	0
	Vermes.....	1	1	0	0	0	0	0
	Noli me tangere.	1	1	0	0	0	0	0
	Morbi oculorum	1	0	0	0	1	0	0
	Other diseases..	150	137	9	0	1	3	0
	Total....	791	695	20	3	6	11	56

No. 6.—Table exhibiting the number of admissions, &c. amongst European Children, from 1837 *to* 1843 *inclusive.*

CLASSES.	DISEASES.	Admitted.	Discharged.				Died.	Remaining.
			Cured.	Relieved.	Transferred.	To Europe.		
Fevers.....	Febrisephemera	17	16	0	0	0	0	1
	„ intermit quot.	9	9	0	0	0	0	0
	„ com: cont....	4	4	0	0	0	0	0
Diseases of the abdominal viscera.....	Diarrhœa.....	195	186	2	1	0	2	4
	Dysenteria.....	37	31	0	0	0	4	2
	Obstipatio.....	155	146	0	0	0	0	9
	Dyspepsia.....	34	28	0	0	0	0	6
	Hepatitis.....	9	8	0	0	0	1	0
	Defective or depraved hepatic secretion.....	49	49	0	0	0	0	0
	Marasmus.....	13	10	3	0	0	0	0
Diseases of the lungs.	Cynanche.....	9	7	0	0	0	2	0
	Larrygismus stridulus.....	2	2	0	0	0	0	0
	Catarrhus.....	22	22	0	0	0	0	0
	Pertussis.....	3	2	0	0	0	0	1
	Phthisis pulmonalis.....	1	0	0	1	0	0	0
	Influenza.....	9	9	0	0	0	0	0
Diseases of the brain.	Convulsio.....	3	1	0	0	0	2	0
	Epilepsia.....	1	0	0	0	1	0	0
	Hydrocephalus.	2	1	0	0	0	1	0
Eruptive fevers.....	Varicella.....	2	2	0	0	0	0	0
	Rubeola.....	11	11	0	0	0	0	0
	Dentitio.....	176	129	26	1	0	6	14
	Vermes.....	14	14	0	0	0	0	0
	Tinea.....	1	1	0	0	0	0	0
	Debilitas.....	5	5	0	0	0	0	0
	Atrophia.....	7	4	0	0	0	1	2
	Scorbutus.....	6	5	1	0	0	0	0
	Morbi oculorum	3	3	0	0	0	0	0
	„ cutis.....	1	1	0	0	0	0	0
	Other diseases..	5	4	0	0	0	0	1
	Total..	805	710	32	3	1	19	40

JAIL OF OOTACAMUND.

No. 7.—*Table exhibiting the Number of Admissions and Deaths, of the convicts, from each Class of Disease, for* 8 *years, from* 1834 *to* 1841 *inclusive.*

CLASSES.	DISEASES.	From 1834 to 1841 inclusive. Aggregate strength 840. 1st Half. Ad.	1st Half. Dd.	2d. Half. Ad.	2d. Half. Dd.	Admissions and deaths from each class of disease. 1st Half. Ad.	1st Half. Dd.	2d. Half. Ad.	2d. Half. Dd.	Total admissions from each class.	Total deaths from each class.	Per centage of sick to strength.	Per centage of deaths to sick treated.
Fevers	Febris ephemera	244	1	298	0	485	2	535	4	1020	6	121·428	0·588
	,, intermit quot.	178	1	235	3								
	,, remittens	0	0	1	1								
	,, com : cont.	63	0	1	0								
	Cholera	0	0	0	0								
Diseases of the abdominal viscera	Diarrhœa	37	0	33	1	215	3	201	5	416	8	49·523	1·923
	Dysenteria	41	3	35	4								
	Colica	5	0	0	0								
	Obstipatio	89	0	75	0								
	Hœmorrhois	5	0	2	0								
	Gastritis	0	0	1	0								
	Dyspepsia	35	0	55	0								
	Hepatitis	3	0	0	0								
Diseases of the Lungs	Catarrhus	37	5	37	1	50	6	50	5	100	11	11·904	11·000
	Pneumonia	13	1	13	4								
Diseases of the Brain.	Apoplexia	1	0	1	0	54	1	20	1	74	2	8·809	2·702
	Epilepsia	0	0	1	1								
	Paralysis	4	1	0	0								
	Cephalalgia	49	0	18	0								
Eruptive fevers	Varicella	65	0	0	0	65	0	1	0	65	0	7·738	0·000
	Erysipelas	0	0	1	0								
	Anasarca	4	1	1	2	4	1	1	2	5	3	0·595	60·000
Rheumatic affections.	Rheumatismus	35	0	53	0	38	0	56	0	94	0	11·190	0·000
	Neuralgia	1	0	0	0								
	Odontalgia	2	0	3	0								
Venereal affections	Gonorrhœa	0	0	0	0	2	0	1	0	3	0	0·357	0·000
	Syphilis primitiva	0	0	0	0								
	,, consecutiva	1	0	0	0								
	Hernia humoralis	1	0	1	0								
Specific diseases	Atrophia	4	0	2	0	8	0	2	0	10	0	1·190	0·000
	Dracunculus	4	0	0	0								
Diseases of the Eye	Morbi oculourm	8	0	12	0	8	0	12	0	20	0	2·380	0·000
Do. Skin.	,, cutis	5	0	8	0	5	0	8	0	13	0	1·547	0·000
	Other diseases	115	1	175	0	115	1	175	0	290	1	34·523	0·344
	Total	1049	14	1062	17	1049	14	1062	17	2111	31	251.309	1·466

Note.—Per centage of deaths to strength 3·690.

The Hills a station for European regiments.

The expediency of stationing European regiments on the Neilgherry hills, on first arrival in India, has been under the consideration of the authorities from time to time; and references have been made to the Medical officers of this establishment, who were best acquainted with the climate, for their opinions. It is not however, proposed in this place to discuss the subject, or to advert to the various arguments which have been advanced on both sides of the question, suffice it to say that the Medical officers in general have been favourable to the measure, and it has been strongly urged by some, that a European regiment in such a climate, beyond, as it has been said, the influence of the epidemic diseases met with in the low country, might be expected to be in as efficient a state for service when called on, as it would be in Europe, or when newly arrived in the country. The subject however is one for consideration in a *financial,* more than *medical* point of view, and though it may be concluded, that the mortality would be very moderate in a corps so placed, and that whilst actually stationed on the hills, the men would preserve both health and vigour, it is still doubtful, if the soldiers would be as efficient in the field, or as well able to bear up against the hardships, and exposure on active service, as those stationed in the low country, or who to a certain extent had become acclimatised.

Botany.

The botany and zoology of the hills, are subjects so comprehensive as to require a separate treatise for their discussion, and the records of the Medical Board, moreover, do not contain the necessary information regarding them, to admit of their being fully discussed. It is however thought proper to give the following extracts from the works of Drs. Baikie and Birch, with some notice of the botanical productions by Baron Hugël.

"The botanical productions of the hills are of the richest and most varied description, but they present a field as yet almost unexplored. From the peculiar nature of the climate, and their position between a tropical and temperate

zone, they partake of the characters and advantages of both; and plants of the most opposite descriptions, from the luxuriant produce of a rich soil under the influence of a tropical sun, to the small Alpine shrub, which niches itself in an angle of the bare rock, may be found, in the compass of a single day's journey. A difficulty in the way of a collector, whose leisure does not admit of his passing a considerable time on the hills, is, that there are plants coming into flower every month of the year, and it would require the labour of many seasons, added to indefatigable industry, to exhaust the Flora."—*Baikie*

The following observations on the general characters of the vegetation are from the pen of Baron Hügel, an officer of the Austrian army, who has travelled very extensively over Europe, and a great part of Asia, in the pursuit of botanical knowledge, and who paid the hills a hurried visit in March 1839. It is much to be regretted, that his plans did not admit of his making a longer stay, as he found much to interest him, and there was reason to expect some valuable information on the capabilities of the hills, from this talented individual, who, to a profound knowledge of the technicology of botany, united an intimate acquaintance with the practical application of the science to horticulture, and all other useful purposes.

"Having been only a few weeks on the Neilgherry Hills, although during that time I traversed them in all directions, I should not be able to give an account of the hill country I have explored, without the kindness of the Rev. B. Schmidt, who having resided at Ootacamund a long time, has put his herbarium at my disposal. Unfortunately the greatest part of the plants, being new or described only of late, more time and books would have been required, than a traveller possesses, in order to pronounce on their species, without the risk of exposing himself. The following pages contain therefore only general remarks on the vegetation and families of plants."

"In every part of the globe, the vegetation, considered as a '*tout ensemble*,' has its peculiar characters, or, as I would say *physiognomy*, which usually changes only at great intervals, and one part of the features of which, forms a portion of the physiognomy of the next. Thus we see some species, remarkable for their size, even in Norway, and in the uttermost northern boundaries of vegetation, form a part of that of the centre of Europe; whilst the plants which most frequently inhabit these woods are found in the north of Italy, and some of them even both in Italy and in Sicily, countries which, notwithstanding, differ from each other infinitely in their physiognomy.

"The same is the case, and even in a higher degree, with respect to tropical countries; the plants change more according to the soil, and the earth on which they grow, than according to the distance. To prove this, I would mention India, in which country, wherever the same soil is found, one may be sure to find not only the same families, but also the same species. I forbear mentioning instances, as they would prove too numerous. The high mountains throughout the globe possess a vegetation entirely different from that of the low country, and even from that of the lower mountains; but which present every where not only the same species, but often the same families, and always the same forms.

"It was very interesting to me to examine the Neilgherry hills, which perhaps cannot be classed among the Alps of our globe, but which have a vegetation quite Alpine, embellished and enlarged by the tropical sun, and the perpendicular beams of light; nearly all the forms of plants of the European Alps, with few exceptions, are found also here. A great number of families and genera are similar, but not one single species which I had occasion to observe is the same, with the exception perhaps of viola canina, which might be one of those subvariations, as viola canina, alpina, pyreniana, neglecta, &c. which I have not sufficiently compared. Berberis, so similar to B. communis, differs from it; it is perhaps B. vulgaris nigra of the Levant. Most other plants, as

rubus fruticosus, fragaria silvestris, &c. have been called so, by persons who suffered themselves to be deceived by a superficial (slight) resemblance."

"It would be very difficult for me, without an herbarium, without books, and even engravings, to speak positively, and to state that the Neilgherries have no species in common with any other part of the globe. For instance, I think the mahonia D. C. which grows there, is the fascicularis of America, &c. but the difference in the physiognomy of vegetation is as great as between that of Tornea in Sweden and that of Naples."

"The family of the compositæ is pretty numerous on the Neilgherries, as is the case on all high mountains, particularly the genus gnaphalium; the family of the Ericeæ veræ is found only in those genera which approach nearest to vaccinium; some species of ranuncularia, two of clematis, one magnoliaceæ, (I think of the subdivison of michelia, but not champaca:) some fine species of the cruciferæ? I can only say, that with regard to all these, the plants which I had in my power to examine and compare, are different from similar species found eleswere."

"A remarkable conformity exists between the Neilgherry plants, and those of the table-land and on the mountains of Nowera Ellia in Ceylon. This last place has many species entirely the same with those of the Neilgherries; many are but sub-variations of the same species, that is, rhododendron arboreum differs but little; the corolla is always of one colour, a deep red without the least spot. "Ficarræ, none*; umbelliferæ, some splendid species; caprifoliaceæ, some species: two gentianeæ, one of them with a beautiful blue flower, exacum bicolor? bignonia in the valleys, a beautiful species. Instead of the cistineæ of our mountains, we have here beautiful melastomacea, which crowns the highest mountains. Drosera, one†; malvacea, some species; geraniaceæ, none‡; some species are found on Nowera Ellia;

* One in Orange Valley since found. (S.) † About Ootacamund we have two. (S.)
‡ One common about Ootacamund. (S.)

hypericea, three. The leguminosa are not numerous, and the genus crotaleria, so abundant in India, producing here colossal plants, comprehends two-thirds of all the leguminosa. A fine species of rosa, with large white§ flower. One passiflora; beautiful cucurbitaceæ; a beautiful species of the crassulacea: a colossal species of solanum; some species of labiatæ; a few verbenacea and euphorbiaceæ. Of the urtica family only one, but in several beautiful varieties. None of the coniferæ. One Salix. Some beautiful and well distinguished Orchidea, bulbous; no amaryllideæ; few asphodeliæ; one tulipaceæ; A beautiful lilium, with one flower; and several species of the commelinea."

"The season being unfavourable for the gramineæ, when I was on the Neilgherries, I can say nothing of them*; but, on the contrary, nothing can be finer than the filices, the species of which are endless, from the fern tree, to the smallest plants. Fungi do not exist at all here†."

"To come back to the physiognomy of the vegetation, it is beautiful, smiling, flourishing; its expression is that of health, of a reproductive vigour, which, strong as it is, remains always noble and elegant."

"Having descended the Neilgherries on all sides, as far as the tropical regions, I have found a very singular thing, viz. a middle region between the Neilgherry Hills, and the usual vegetation of Malabar or Mysore, and which takes the place of our sub-alpine vegetation; I have found there several magnificent plants often of colossal size, and which vary greatly in the different passes of Goodaloor, of Kotagherry (or Orange valley), Coonoor, and Koondah; in short, the botanist finds in this wonderful country, attractions which few other parts of the earth can offer him, and which a delightful climate permits of his procuring, at the expense of excursions which would be fatiguing even in Europe, but which here only add to his enjoyment."

§ One fine red species also. (S.)

* Grapes are common at Kotagherry and Coonoor. (S.)

† Baron Hügel saw none at the season he was there, but they are common at other times of the year.

Dr. Birch in his topographical report on the hills in 1833, makes the following remarks:

"*The vegetable products are numerous and novel, but as yet few have been found to possess medicinal properties, or to be adapted for commerce, except the holly, *(Berberis)* the wood of which is of a bright yellow, and gives a good dye of the same colour. It grows very generally all over the hills, but is small and stunted, and would barely repay the expense of cutting and carriage. Of fruits, there is the wild raspberry, which grows luxuriantly in most of the woods, and a species of *myrtus*, which produces a wholesome fruit, in flavour and pulp, resembling the gooseberry, but enveloped in a skin like that of a peach. The brazil cherry and peaches have been successfully introduced, but generally speaking, no progress has been made in the cultivation of European fruit trees, although in the culinary department of horticulture, the success has been very marked; potatoes, peas, beans, cabbage, cauliflower, beet, carrots, turnips, celery, lettuce, grow very well, and are of good quality. Attempts have been made to raise both chenna, and coolty, but ineffectually. Barley thrives well, and oats indifferently, the latter produces little grain, but has an enormous stalk, five or six feet in height, and proportionally thick, and which if cut will grow again from the same root, so as to afford excellent fodder for cattle; as also does the blade of the kind of millet, which the natives of the hills chiefly live on."

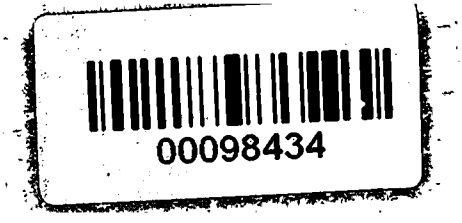
"The indigenous grasses are coarse and rank, and not good for horses, although horned cattle do not suffer from feeding on them. Owing to this, and the coldness and humidity of the climate throughout the greater part of the year, sheep languish very soon unless fed upon grain; but goats, which have been introduced about eight years, thrive as well here as in the plain; horses fall off in flesh on their first arrival, but never in spirit, which seems to be increased by the bracing air; after a few months they get into good condition, they require to be warmly clothed and housed."

* The salep (orchis mascula) has been discovered in considerable quantity on the hills, but as yet has not become an article of commerce to any great extent.

Zoology. Elephants though numerous in the surrounding country, are not found on the hills, but are occasionally seen in the passes. The principal animals are the royal tiger, cheetas, bears, elk, jackalls, wild dogs, the muntjak, (a species of wild sheep), wild hogs, martens, large flying squirrels, polecats, also a species of fox, and hares in great numbers, porcupines, and otters are also to be met with.—Of birds there is a great variety, many species of which have not as yet been described; besides those peculiar to the plains, and to other mountain ranges, the most remarkable are the woodcock, black-bird and thrush, which appear to be identical with those found in England.

Of snakes and other reptiles there are likewise great varieties, and many of the former are said to be venomous.

More detailed information on these subjects is given in the accounts of the hills, by Baikie published in 1834; by Birch in a topographical report, published in the Madras Journal of Literature and Science No. 20 of 1838; and in Young's account of the Neilgherries, published in the Transactions of the Medical and Physical Society of Calcutta. vol. 4.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